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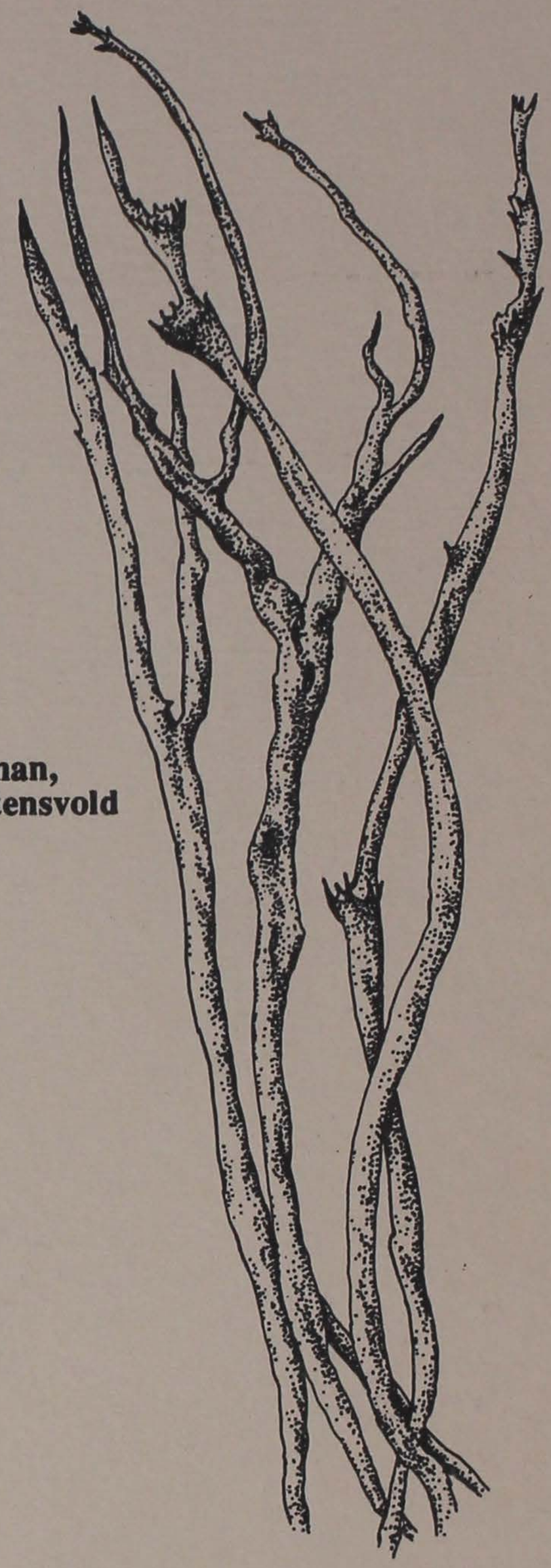
Lichens of Southeastern Alaska

An Inventory



September 1994

**Linda H. Geiser, Karen L. Dillman,
Chiska C. Derr and Mary C. Stensvold**

FS-INFO-ALASKA
FORESTRY SCIENCES LABORATORY
2770 Sherwood Lane, Suite 2A
Juneau, AK 99801-8545

**USDA-Forest Service
Tongass National Forest
Stikine Area
P.O. Box 309
Petersburg, Alaska 99833**

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Linda H. Geiser
Ecologist
USDA-Forest Service
Siuslaw National Forest
Corvallis, OR 97330

Mary C. Stensvold
Regional Botanist
USDA-Forest Service Alaska Region
Tongass National Forest/Chatham Area
Sitka, AK 99835

Karen L. Dillman
Biological Technician
USDA-Forest Service
Tongass National Forest/Stikine Area
Petersburg, AK 99833

Chiska C. Derr
Ecologist
USDA-Forest Service
Chugach National Forest
Girdwood, AK 99587

1. INTRODUCTION

1.1 About this inventory

The current inventory includes 453 lichen species from 112 genera and 15 subspecies, 4 varieties and 2 forms from southeastern Alaska and is the most comprehensive to date. Of the taxa documented, 107 were considered rare within southeastern Alaska and/or North America and many were considered uncommon. Twenty range extensions are reported including the first records of *Allantoparmelia sibirica* and *Rhizocarpon praebadium* in North America. Some species were abundant in many habitats, many had more specialized habitat requirements, and many remain poorly known.

The inventory was compiled primarily from data collected at 258 sites on the Tongass National Forest between 1989 and 1993, previous collections made by one of the authors (Stensvold) and a joint U.S. Forest Service/National Park Service expedition to Klondike National Historic Monument in 1993. To make the inventory more useful, previously documented species not represented in the Forest Service database have been included (primarily from Cummings, 1904; Herre, 1919; Heusser, 1954; Krog, 1967; McCullough, 1965; Thomson, 1984 ; and herbarium at the University of Alaska, Southeast). Each species entry includes information about its sensitivity to sulfur dioxide (when known), its abundance and habitat in southeastern Alaska, abundance in North America, and range. Special notes are included for some species, e.g. range extensions or unusual collections.

The 1989-1993 Forest Service database, from which the distribution maps and most of the abundance estimates and habitat descriptions were made, is part of an air quality monitoring program on the Tongass National Forest . This database is most comprehensive for the macrolichens of forested habitats of Southeastern Alaska. The inventory of macrolichens of other habitats and the microlichen inventory should be considered preliminary. Some important underinvestigated habitats are subalpine forests, recently exposed glaciated areas, alpine areas, beaches, glacial outwash river valleys, salt and fresh water aquatic systems, areas of the Tongass which experience a more inland climate such as Skagway or the Taku and Unuk River valleys, and areas disturbed by human activity.

1.2 About southeastern Alaska

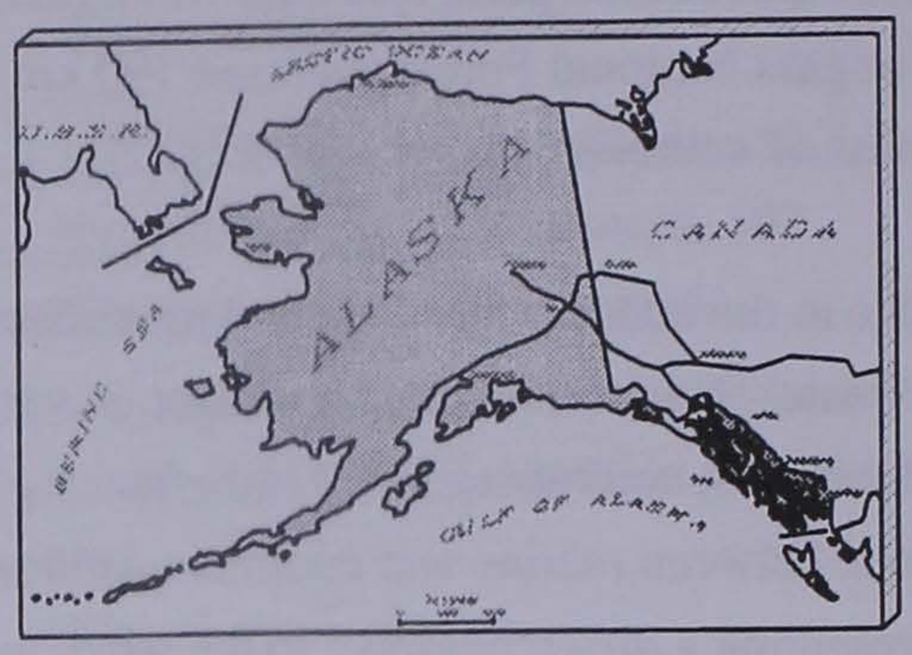
Southeastern Alaska occupies a narrow land area between 45-55° N latitude and 141-131° W longitude, bordered on the east by Canada's British Columbia and on the west by the Pacific Ocean. Much of the land mass is dominated by an intricate system of fjords and mountainous islands, the Alexander Archipelago. The six largest islands are Prince of Wales, Baranof, Chichagof, Admiralty, Revillagigedo and Kupreanof and their summits range from 760-1070 m. (2,500 to 3,500 ft.) in elevation. In contrast, the rugged mainland strip often peaks as high as 3050 m (10,000 ft). The ten major rivers of the region originate in Canada. The Stikine River has the largest drainage area, followed by the Alsek, Taku and Chilkat Rivers. In the extreme north, the Yakutat district consists of a low, hummocky, irregular,

mainland coastal plain less than 70 m. (220 ft.) in elevation. The 6.8 million ha (16.8 million acre) Tongass National Forest averages 190 km (120 miles) wide, 900 km (600 miles) long, and encompasses most of southeastern Alaska (**Fig. 1**).

Due to the inland waterways and proximity to the Pacific Ocean, most of southeastern Alaska has a marine climate. This means small temperature variations, high humidity, high precipitation, considerable cloudiness, and (at sea level) little freezing weather. An exception is the northeast which lies in a transition zone between marine and continental climates. The many peaks, valleys, ridges, and broad slopes, each presenting a different aspect to the wind, not only gives southeastern Alaska some of its general climatic conditions, but creates large climatic variation over short distances. Temperatures at sea-level average from 4 to 18 C (40-65°F) in summer and from -8 to -4 C (17 to 43°F) in winter. These ranges decrease with elevation. In summer, cooler temperatures occur on or near the coasts; warmer temperatures farther inland. In winter, the reverse occurs.

The average annual precipitation is well over 2540 mm (100") in much of the region, varying with global weather patterns, topography and air temperature. Snow occurs frequently in all areas during winter, but usually melts after a few days at lower elevations in the southern third of the area. Accumulations of more than 1520 mm (60") are not uncommon in the northern two-thirds of the region. In the mainland mountains 5100-10000 mm (200-400") of snow fall accumulate each year, helping to perpetuate the ice fields and glaciers.

Cool, moist, maritime conditions produce a lush forest, which is an extension of the rain-belt forest of the Pacific Northwest. The forest is interrupted by muskegs (peat lands), glacial outwash plains, and marsh-lands in river valleys and deltas. Timberline varies between 610-915 m. (2000- 3000 ft.) and forests are commercially harvested up to 460 m. (1500 ft.). The predominant tree species are western hemlock (*Tsuga heterophylla*) (75%) and Sitka spruce (*Picea sitchensis*) (20%), red and yellow cedars (*Thuja plicata* and *Chamaecyparis nootkatensis*), mountain hemlock (*Tsuga mertensiana*), cottonwood (*Populus trichocarpa*), and red alder (*Alnus rubra*). Forest soils on sloping terrain are primarily spodosols. Flat areas usually become "muskegs" (peatlands) and in these areas the soil is strongly acidic, almost entirely organic and continually saturated. No permafrost exists at forested elevations. High elevations support alpine vegetation, and above this one finds rock, ice and snow. A checklist of vascular plants lists 1014 species (Stensvold nee Muller, 1982). Ian Worley's (1972) inventory reported 533 bryophyte species. This report lists 454 lichen species, and several hundred more are presumed to exist.



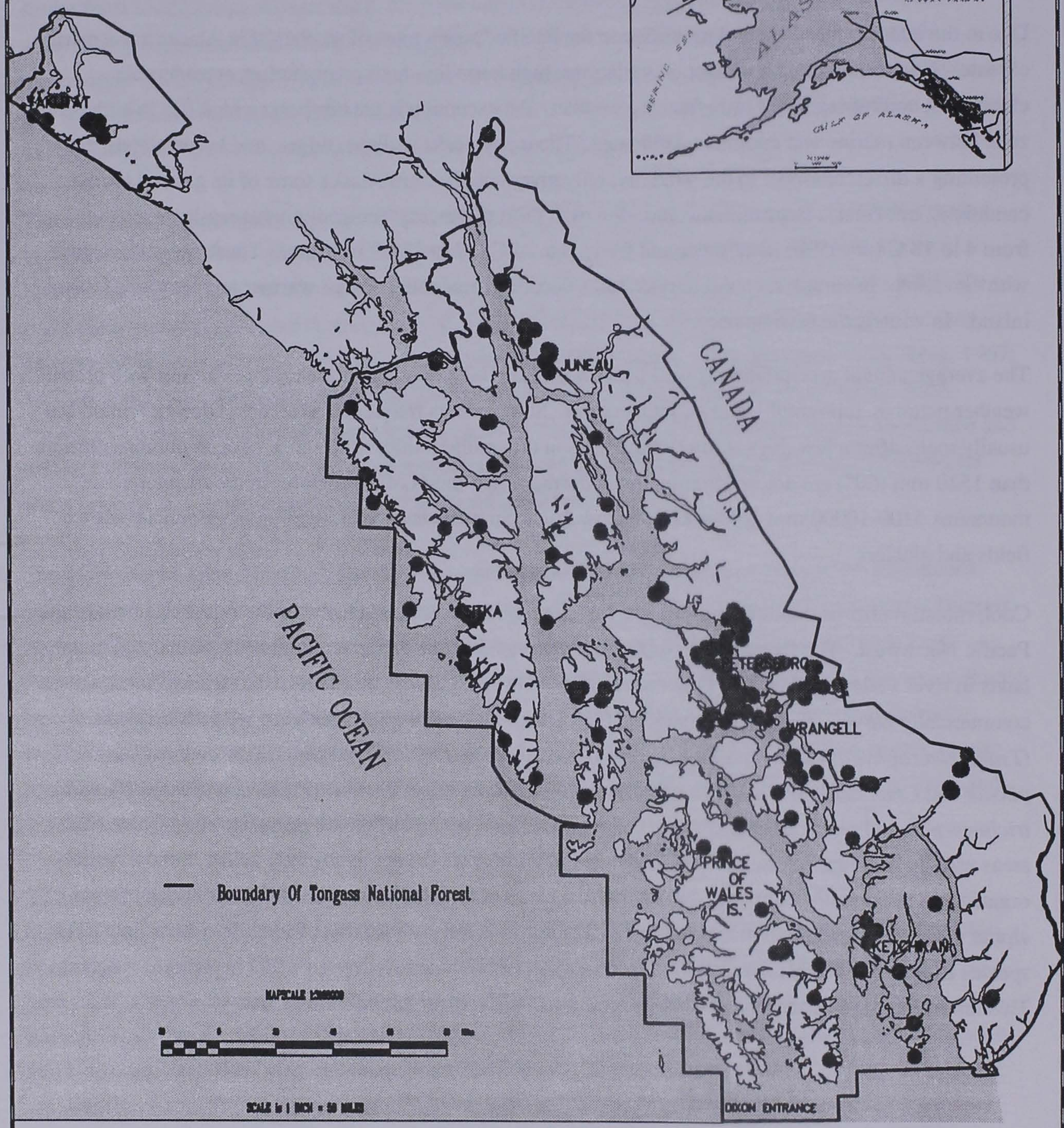


Figure 1. Collection sites on the Tongass National Forest

2. METHODS

2.1 Site selection and description

Most of the inventory data used to describe abundance, habitat and regional distribution was collected during the summers of 1989-1993 from approximately 180 circular 42' radius plots and 77 additional collection areas (**Fig. 1**). The plots are part of a long term air quality monitoring program on the Tongass National Forest (Geiser et al., 1994) and data collection was made in a systematic manner. Most were in mature or old-growth forested hillsides, mountain slopes, riparian areas and muskegs. The rest were in second growth forests, beaches, and recently glaciated or alpine areas.

Forested plots were chosen according to standard procedures used in development of the Stikine Area plant association classifications (Pawuk and Kissinger, 1989). Plots were located in areas homogenous for a single plant association. Large openings in the forest, disturbed areas, and breaks in topography were generally avoided. Plot center was marked and plot edges were flagged at four points, perpendicular through plot center. Non-forested plots were often less homogenous but were otherwise marked and sampled in the same manner. Size of collection areas was not measured.

Variables recorded at each plot from 1990 through 1993 were: plot number, date, observers, general location, quadrangle, township range and section, administrative district, elevation, slope, aspect, landform soil drainage, plant association, successional stage, % canopy cover and stand height of understory and overstory, trunk diameter (dbh), average shrub height, and % cover of plant association indicator species and other vascular vegetation. The 1989 plot cards and collection areas were identical except non-lichen vegetative data was limited to % canopy cover and identification of the plant association. Detailed methods for data collection are described in Geiser et al. (1994). Methods used to asses variables pertinent to this inventory are summarized below.

The location of each plot was pin-pointed and marked on a USGS quadrangle map (15 min. series topographic). Latitude and longitude (to second) were measured from the marked maps. Elevation, percent slope and aspect were recorded from hand-held instruments. Landform was assessed from the USGS maps (See Pawuk and Kissinger, 1993 for landform designations). Average overstory and understory height and composition as well as tree diameter was measured. Successional stage assignments were made by visual examination of the stand: Old growth contained trees of all ages from sapling to standing old snags and fallen, decomposing logs; mature stands were large trees of even age; pole timber contained trees greater than 5" in diameter and under 200 years old; and seedling/sapling was used to describe anything smaller than pole timber. Forb/shrub classifications lacked trees. All *Pinus contorta* associations were considered old-growth as they are rarely susceptible to blow-down or fire and are not commercially harvested.

Within plots, vascular plants were identified to species when possible. Percent cover of plants known to be indicators of forested plant associations (Pawuk and Kissinger, 1989) were always recorded. Records of other species were less thorough. Plant association was determined from the indicator plants using the keys of Pawuk and Kissinger (1993). Some associations outside the Stikine Area which did not fit this key were assigned associations using Ketchikan or Chatham Area plant association keys. Non-forested associations were classified according to DeMeo (1988). Nomenclature of trees and shrubs follows Viereck and Little (1972). Nomenclature of forbs, graminoids and ferns follows *Anderson's Flora of Alaska and Adjacent Parts of Canada* (Welsh, 1974). No bryophyte data were collected.

2.2 Lichen inventory.

At all plots, a thorough survey was made of the macrolichens growing on the forest floor (including litterfall), trunks, shrubs, fallen branches and on trunks and branches visible without climbing. Microlichens were also collected, but no attempt was made to make a thorough survey. Each species was given a general abundance rating according to the total number of times it was observed on the plot: 1 (once), 2 (2-5 times), 3 (6-15 times), 4 (16-40), 5 (over 40). For lichens growing in colonies (e.g. *Cladonia*), the abundance rating reflected the number of colonies, not individuals. This method is fast and repeatable for the larger, common macrolichens which are visible from a distance (e.g. *Lobaria*, alectoroids, *Psuedocyphellaria, Sticta, Usnea, Peltigera, Platismatia* and *Sphaerophorus*). For the smaller macrolichens, crustose lichens, and genera like *Cladonia* , in which many species are morphologically similar, it can provide only a rough estimate. For these species, the lower the abundance rating, the less certain its accuracy.

In contrast, collection areas were places, usually enroute to plots, where a small number of unusual or interesting lichens were found. A data card was filled out to accurately document location, habitat, and substrate. Because plots were not measured out, abundance estimates are not included here.

Although some lichens are readily recognizable, many cannot be identified in the field. All lichens whose taxonomy was uncertain were collected in paper packets, assigned a guess or descriptive name and rated for abundance on the data card. Lichens collected in 1990 were identified at the Canadian Museum of Nature national lichen herbarium (CANL) in Ottawa, Ontario with help from Irwin Brodo and Pak Yau Wong. Taxonomic keys developed for the Queen Charlotte Islands and by Drs. Brodo and Goward, respectively, various monographs, and a combination of chemical spot tests and thin layer chromatography (TLC) were used. Identifications were checked against herbarium specimens from the Queen Charlottes and British Columbia, when available, and from other parts of the world for rare or unusual specimens. Much of the thin layer chromatography work and some identifications were performed by Pak Yau Wong. Lichens collected in 1989 and 1991, including all *Cladonia* and crustose lichens from those periods, and

some 1992 collections, were identified at the University of Wisconsin at Madison by or with the assistance of John Thomson of the Dept. of Botany, the herbarium (WISC) and his library. Identifications were compared to Thomson's collections from Alaska and to type specimens or exsicatti whenever possible. Micro-crystal tests were used in lieu of TLC, mainly for the identification of *Cladonia* species. Additional genera from 1989 and 1991 were identified by Chiska Derr with the assistance of Bruce McCune at Oregon State University at Corvallis using chemical spot tests and the OSU herbarium and library. Selected *Hypogymnia* and *Heterodermia* specimens were verified by Trevor Goward of the University of British Columbia. Seventy five 1993 collections, mostly from mainland alpine areas, were identified by Dr. Bruce Ryan at Arizona State University.

3. RESULTS AND DISCUSSION

3.1 Plot distribution.

Shorepine muskeg and western hemlock series forested plots were evenly distributed across the Tongass National Forest. For all other habitats and collecting areas, distribution emphasized the Stikine Area (**Fig. 2**) and this is reflected in the distribution maps.

Figure 2. Distribution of plots and collecting areas among administrative areas of the National Forest.

Area	# plots	% of plots	# collecting areas	% of collecting areas
Chatham	53	29.4	30	38.5
Ketchikan	39	21.7	8	10.3
Stikine	88	48.9	40	51.2
Total	180	100	78	100

There was a strong bias toward low elevation plot locations. Approximately 78% of all plots and collection areas were between sea level and 500 feet (**Fig. 3**).

Figure 3. Distribution of plots and collecting areas by elevation.

Elevation (ft.)	# of Sites	% of Sites
0-49	54	20.9
50-99	51	19.8
100-199	46	17.8
200-499	50	19.4
500-999	16	6.2
1000-1499	7	2.7
1500-1599	3	1.2
2000-2499	4	1.6
2500-2999	5	1.9
3000-3499	8	3.1
3500-3599	2	0.8
4000-4200	5	1.9
not recorded	7	2.7
Total	258	100

Forested plant associations were well represented (**Fig. 4**). There was an emphasis on western hemlock old-growth, the most abundant plant series on the Tongass National Forest, and shorepine muskegs. Fig. 5 includes only plots with described plant associations.

Figure 4. Distribution of plots within forested plant communities.

Plant Series	# of plots	Plant Association	# of plots
Mixed conifer	12	Mixed Conifer/*Vaccinium*	3
		Mixed Conifer/*Vaccinium/Fauria crista-galli*	3
		Mixed Conifer/*Vaccinium/ Lysichitum americanum*	6
Shorepine muskeg	57	*Pinus contorta/Carex sitchensis*	2
		Pinus contorta/Empetrum nigrum	53
		Pinus contorta/Vaccinium	2
Sitka spruce	20	*Picea sitchensis/Calamagrostis nutkaensis*	1
		Picea sitchensis/Oplopanax horridum	4
		Picea sitchensis/Oplopanax horridum/Rubus spectabilis	4
		Picea sitchensis/Oplopanax horridum/Circea alpina	1
		Picea sitchensis/Vaccinium	4
		Picea sitchensis/Vaccinium-Oplopanax horridum	6
Sitka spruce/ hardwoods	15	*Picea sitchensis-Populus trichocarpa*	2
		Picea sitchensis-Populus trichocarpa/Oplopanax horridum/Circea alpina	2
		Picea sitchensis/ Alnus sinuata-Vaccinium	7
		Picea sitchensis/Alnus-Oplopanax horridum	3
		Picea sitchensis/Salix/Vaccinium	1
Black cottonwood	9	*Populus trichocarpa/Alnus*	2
		Populus trichocarpa/Alnus-Oplopanax horridum	3
		Populus trichocarpa/Alnus-Rubus specatabilis	2
		Populus trichocarpa/Equisetum	1
		Populus trichocarpa/Salix	1
Willow	5	*Salix*	3
		Salix/Alnus	2
Western hemlock	40	*Tsuga heterophylla-Chamaecyparis nootkatensis/Vaccinium*	3
		Tsuga heterophylla-Chamaecyparis nootkatensis/Vaccinium/Lysichitum americanum	2
		Tsuga heterophylla-Thuja plicata/Vaccinium	2
		Tsuga heterophylla-Thuja plicata/Vaccinium/Lysichitum americanum	1
		Tsuga heterophylla/Oplopanax horridum	2
		Tsuga heterophylla/Vaccinium	5
		Tsuga heterophylla/Vaccinium-Oplopanax horridum	7
		Tsuga heterophylla/Vaccinium/Dryopteris austriaca	13
		Tsuga heterophylla/Vaccinium/Lysichitum americanum	6
Mountain hemlock	13	*Tsuga mertensiana/Circea alpina*	3
		Tsuga mertensiana/Circea alpina/Fauria cristae-galli	5
		Tsuga mertensiana/Vaccinium	2
		Tsuga mertensiana/Vaccinium/Fauria cristae-galli	1
		Tsuga mertensiana/Vaccinium/Lysichitum americanum	2
Totals	171		171

Data was collected from most of the southeastern Alaskan landforms (**Fig. 5**).

Figure 5. Distribution of plots and collecting areas among landforms.

Landform		# sites	% of sites
Beaches	Beaches and dunes	28	
	Rock headlands	1	
	Uplifted beaches	4	
	Small marine islands	4	
	Total	37	14.3
Valleys	Estuaries	2	
	Floodplains	26	
	Outburst floodplains	5	
	Total	33	12.8
Lowlands	Flat lowlands	41	
	Gently sloping lowlands	37	
	Infrequently dissected volcanic plains	4	
	Infrequently dissected footslopes	4	
	Frequently dissected footslopes	2	
	Total	88	34.1
Hills	Rolling hill country	14	
	Infrequently dissected, smooth hillslopes	4	
	Freq. dissected, deeply incised mountain slopes	12	
	Broken hill slopes	5	
	Total	35	13.7
Mountain slopes	Frequently dissected, shallowly incised mtn. slopes	9	
	Frequently dissected, deeply incised mtn. slopes	3	
	Infrequently dissected, smooth mountain slopes	21	
	Broken mountain slopes	10	
	Total	43	16.7
Alpine	Rounded mountain summits	16	
	Total	16	6.2
	Data missing	6	
	Grand Total	258	100

3.2 Lichen Inventory

3.21 Key to Inventory, Distribution maps and illustrations.

Nomenclature: Scientific nomenclature follows Egan (1987) and subsequent updates (Egan 1989, 1990, and 1991).

Sensitivity: Sensitivity to air quality is given on a 1 to 10 scale from highly tolerant (1) to highly sensitive (10). These estimates are based on a literature survey of 54 field studies of lichen sensitivity around various point sources in the former Soviet Union, Europe, Canada and the United States (Insarova, et al, 1992). Although the authors used standardized methods to compare the independent studies, variation in sensitivity for the same lichen species in different studies can be considerable. The variation probably stems from differences in climate, relative concentration and composition of pollutants, substrate, and subjective elements in compiling the various studies and within the studies themselves.

SO_2 Sensitivity :

Sensitive= present at average annual ambient SO_2 levels below 50 µg/m3.
Intermediate= present at average annual ambient SO_2 levels of 50-100 µg/m3
Tolerant= present at average annual ambient SO_2 levels greater than 100 µg/m3

Published limits of presence and absence, when available, are given in $\mu g/m^3$. Most values are based on averages of several studies for one or more years but some are partly based on average winter concentrations over several years. Numbers before and after the slash indicate sulfur dioxide concentrations tolerated and not tolerated by the lichen, respectively. In some cases, one or the other may be unknown. In other cases, different authors do not agree on the sensitivity and a range is given or some records are not included. The information comes from Wetmore (1983).

Abundance: The first value is the number of plots where the species was found in the 1989-1993 Forest Service collections. When this number is zero, the lichen was reported elsewhere and the reference is given. Sometimes the abundance number will be higher than the number of plots listed in the distribution maps. This is because the number includes collections made independently of or in transit to plots. Locations of these collections are known but they have not yet been added to the database.

The second value is an estimation of the abundance of this lichen in southeastern Alaska. To make each estimate, the number of Forest Service plots from which each lichen was observed (as opposed to actual number of individuals on the Forest) and the number of times the expected habitat was sampled were considered.

Abundant= large numbers of individuals can be found throughout southeastern Alaska from many habitat types or from a few widespread habitats. In quantitative terms, the lichen was recorded from

>30% of all thoroughly surveyed plots (180 possible) or from >70 % of plots with the described habitat (number possible varies--can be estimated by the reader from Tables 4-6).

Common= some individuals can be found in most parts of southeastern Alaska or can be found in large numbers within certain habitats. Recorded from 10-29% of thoroughly surveyed sites, or 30-70% of sites with the described habitat.

Infrequent= the lichen is found infrequently even in expected habitats. Recorded from 5-29% of sites with the described habitat.

Rare= the lichen is rarely found, either due to scarcity of habitat or to low population. Recorded from <5% of sites with the described habitat.

?= insufficient information to classify. Either habitat was insufficiently investigated or (particularly for crustose forms) species was undercollected.

Note that in some cases, the quantitatively estimated abundance rating was changed if it conflicted greatly with the authors' experience.

Habitat: The habitat for the lichen in southeastern Alaska is described. Most of these data are from the 1989-93 Forest Service database. In general, the more records there are, the more accurate this description. For species not collected in the Forest Service inventory, or with very few records, a general habitat description from available literature is usually given and that source is referenced.

Abundance in North America /Range: An abundance rating for the species in North America and a brief description of its range in North America and the world is given. This information came from a variety of sources (which are not always cited in the inventory), particularly Thomson (1984), Goward et al. (1992), Purvis et al. (1992), Noble et al.. (1987), Krog (1968), Fink (1935) and monographs for the following taxa: *Alectoria* and *Bryoria* (Brodo and Hawskworth, 1977), Caliciales (Tibell, 1975), *Cladonia* (Thomson, 1967), *Leptogium* (Sierk ,1964), *Lobaria* (Jordan, 1973), *Nephroma* (Wetmore 1960), *Ochrolechia* (Brodo, 1991), *Pertusaria* (Dibben 1980), *Pilophorus* (Jahns, 1981), *Platismatia* and *Cetrelia* (Culberson and Culberson, 1968) and *Stereocaulon* (Lamb, 1977). Many species in southeastern Alaska are amphi-Beringean and the Russian literature referenced includes Mikulin's (1990) keys to the lichens of Kamchatka and the five volumed Handbook of Lichens of the USSR (Kopaczevskaja et al., 1971; Blum et al., 1975; Kopaczevskaja et al., 1977; and Golubkova et al., 1978). About 70% of southeastern Alaskan lichens also occur in the American Arctic and a larger percentage also occur in British Columbia.

Distribution Maps:

Distribution maps accompany many of the lichens in the inventory. The map data is extracted from the 1989-1993 Forest Service database described in the methods section. Each dot represents the location of a site (=plot or collection area) where the species was found. The total possible number of sites was 257 (see **Fig. 1**). The lower left-hand corner of each map lists the number of sites for each abundance category. Abundance ratings were made in the field and are estimates of the total number of times a

species was observed on the site: 1 (once), 2 (2-5 times), 3 (6-15 times), 4 (16-40), 5 (over 40). A "+" indicates the species was present but abundance was not recorded. For example, the distribution map of *Alectoria nigricans* shows this species was collected from ten sites. On four sites the abundance was not noted. On four sites only one individual was recorded, and on two sites 2-5 individuals were recorded.

Illustrations:

Forty-nine of the most common and regionally interesting species are illustrated. Drawings are reproduced at life size or magnified (scale given) and accompany the inventory entries.

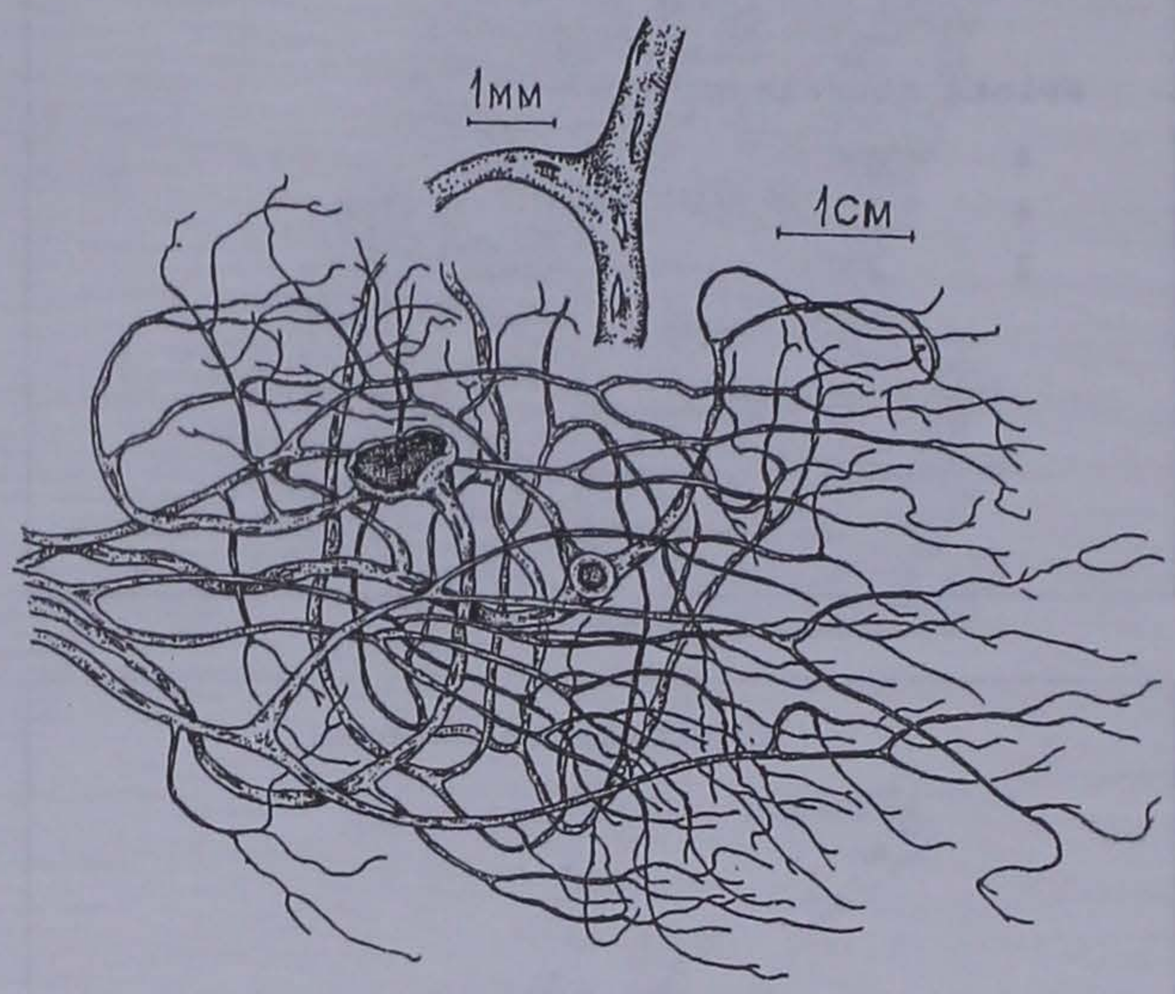
Location of vouchers:

Almost all species reported from the US Forest Service database are in the Tongass National Forest Lichen Herbarium (TNFS) in Petersburg, Alaska. Duplicates were sent to herbaria at the Smithsonian Institution, University of Alaska at Fairbanks (ALA), University of Wisconsin at Madison (WIS), and Oregon State University (OSU). The collections of Rita O'Clair, verified by Irwin Brodo, are housed at the herbarium of the University of Alaska, Southeast in Juneau. Of the species included in the inventory solely from literature sources, none were examined by the authors, and the location of vouchers would have to be traced through the citation(s) provided.

Alectoria nigricans (Ach.) Nyl.
Abundance: 10, common.
Habitat: on rock and soil in the alpine and subalpine.
Abundance in North America/Range: common; arctic.

Alectoria ochroleuca (Hoffm.) Mass.
Abundance: 1, infrequent.
Habitat: alpine and subalpine.
Abundance in North America/Range: common; circumpolar arctic-alpine.
Notes: previously reported from Juneau area by O'Clair and from Mt. Roberts by Krog (1968)

Alectoria sarmentosa (Ach.) Ach.
subsp. **sarmentosa**
SO_2 Sensitivity: intermediate, 34-52/52-78.
Abundance: 148, abundant.
Habitat: on bark and lignum of coniferous trees and deciduous shrubs.
Abundance in North America/Range: common; east and west coast distribution.
Notes: baseline elemental analysis data from the Tongass National Forest is available for this lichen.



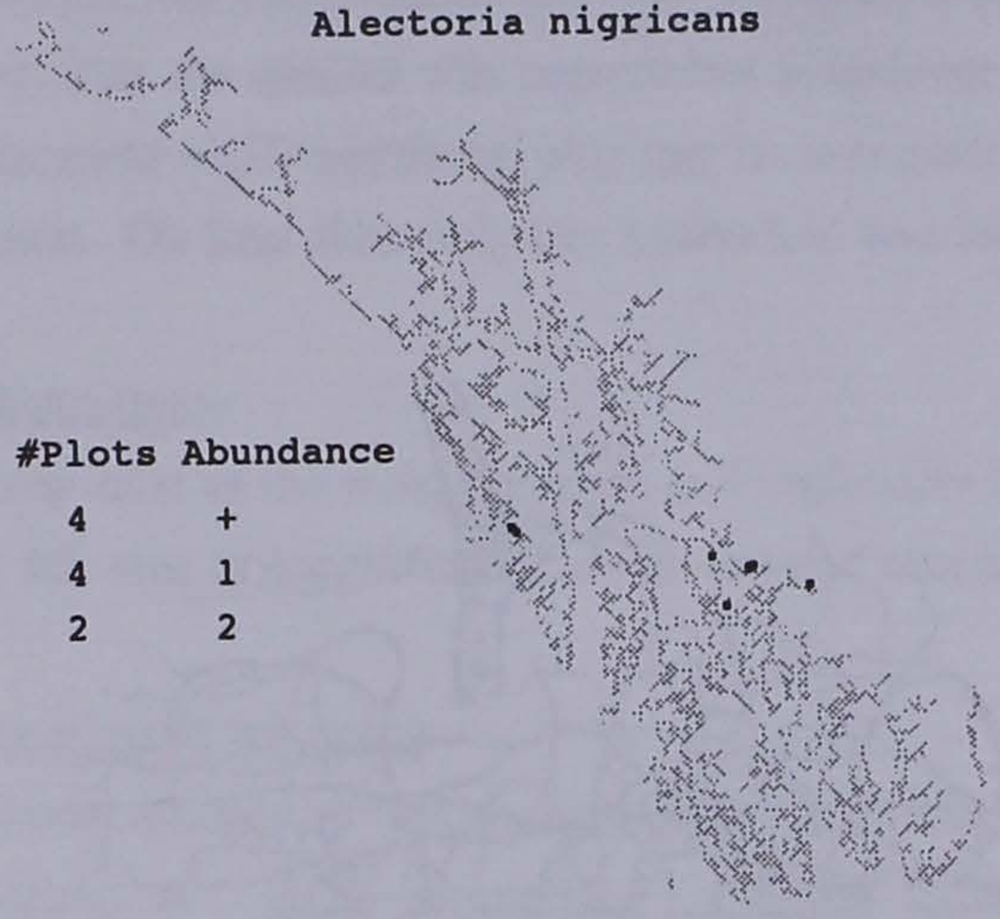
Alectoria sarmentosa

subsp. **vexillifera** (Nyl.) D. Hawksw.
Abundance: 0, rare.
Habitat: alpine and subalpine.
Abundance in North America/Range: infrequent in western North America except for the Rocky Mtns., occurring south to Washington. More common across eastern arctic Canada south to New Hampshire and most common in parts of Northern Europe and Greenland.
Notes: previously collected from Auke Lake, Juneau vicinity (Imshaug #28505) (Brodo & Hawksworth, 1977).

(**Alectoria vancouverensis** (Gyeln.) Gyeln. **ex** Brodo & D. Hawksw.)
Abundance: 0, rare?
Habitat: alpine and subalpine.
Abundance in North America/Range: infrequent coastal Pacific Northwest endemic. Center of distribution is southern Vancouver Is. and northern WA. This lichen is rare in more northerly parts of coastal British Columbia where it has been collected from very moist coastal *Thuja-Tsuga* forests just south of the Alaska border.
Notes: not yet recorded from southeastern Alaska.

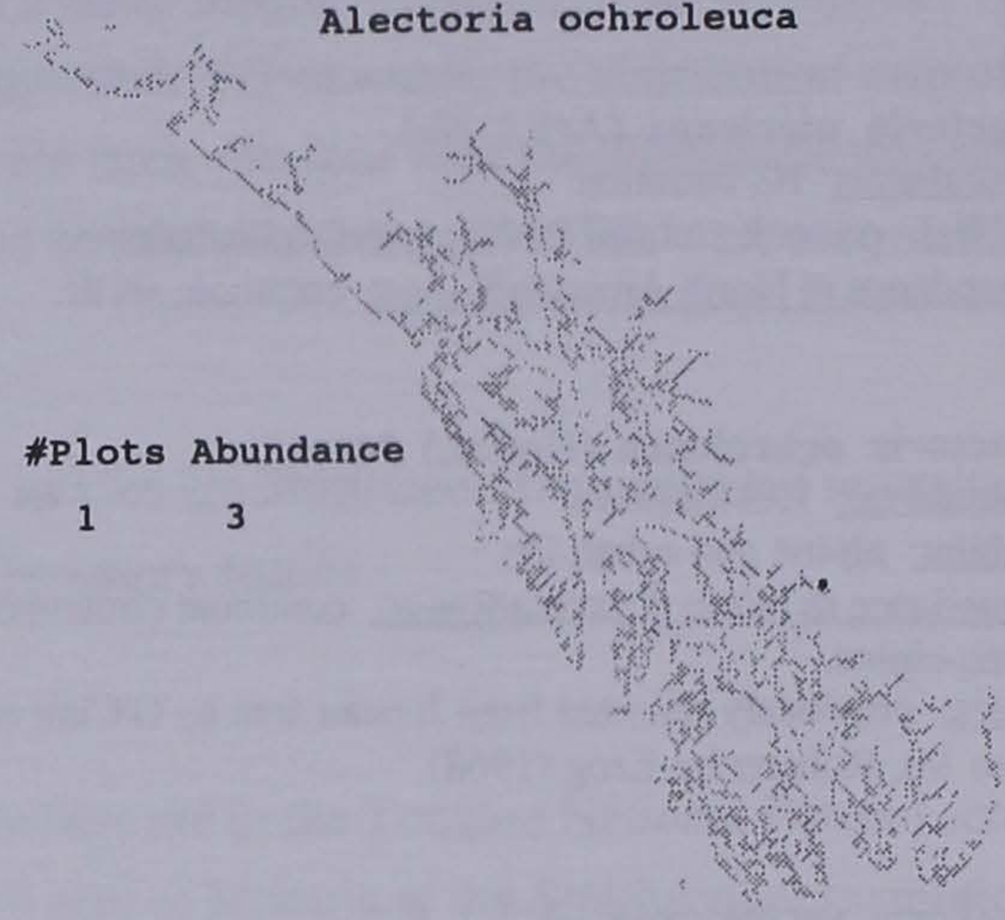
Allantoparmelia almquistii (Vainio) Essl.
Abundance: 1, ?
Habitat: over acid rock in exposed maritime alpine and subalpine localities.
Abundance in North America/Range: infrequent arctic-alpine; amphi-Beringian and eastern North America, Alaska to British Columbia in western North America. Rare in British Columbia.
Notes: also reported from the Juneau and Ketchikan vicinities (Thomson, 1984).

Alectoria nigricans



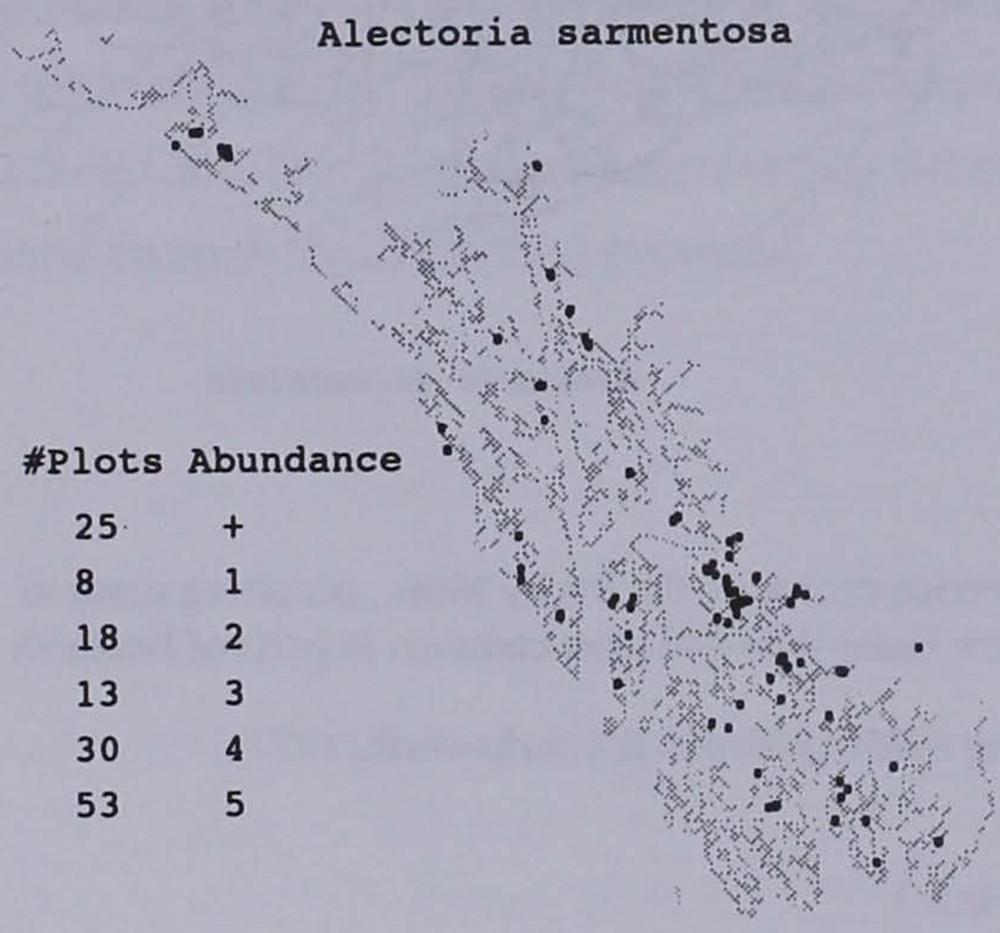
#Plots	Abundance
4	+
4	1
2	2

Alectoria ochroleuca



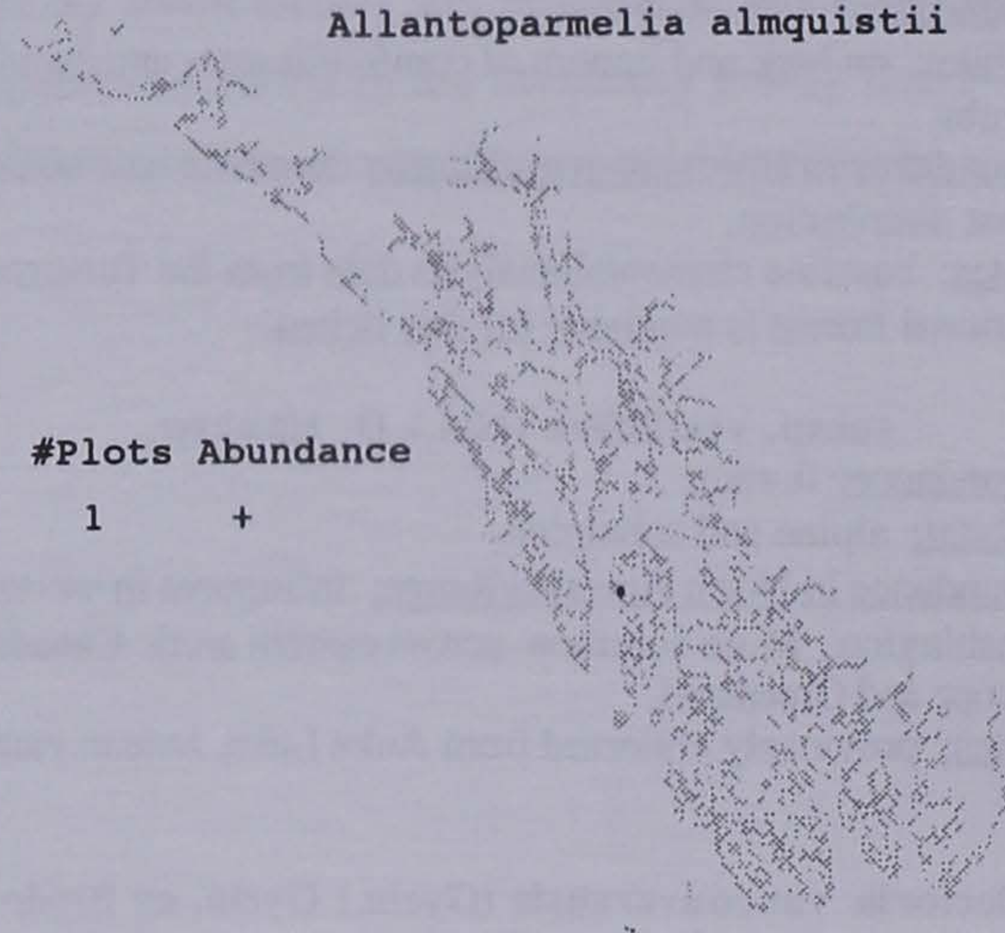
#Plots	Abundance
1	3

Alectoria sarmentosa



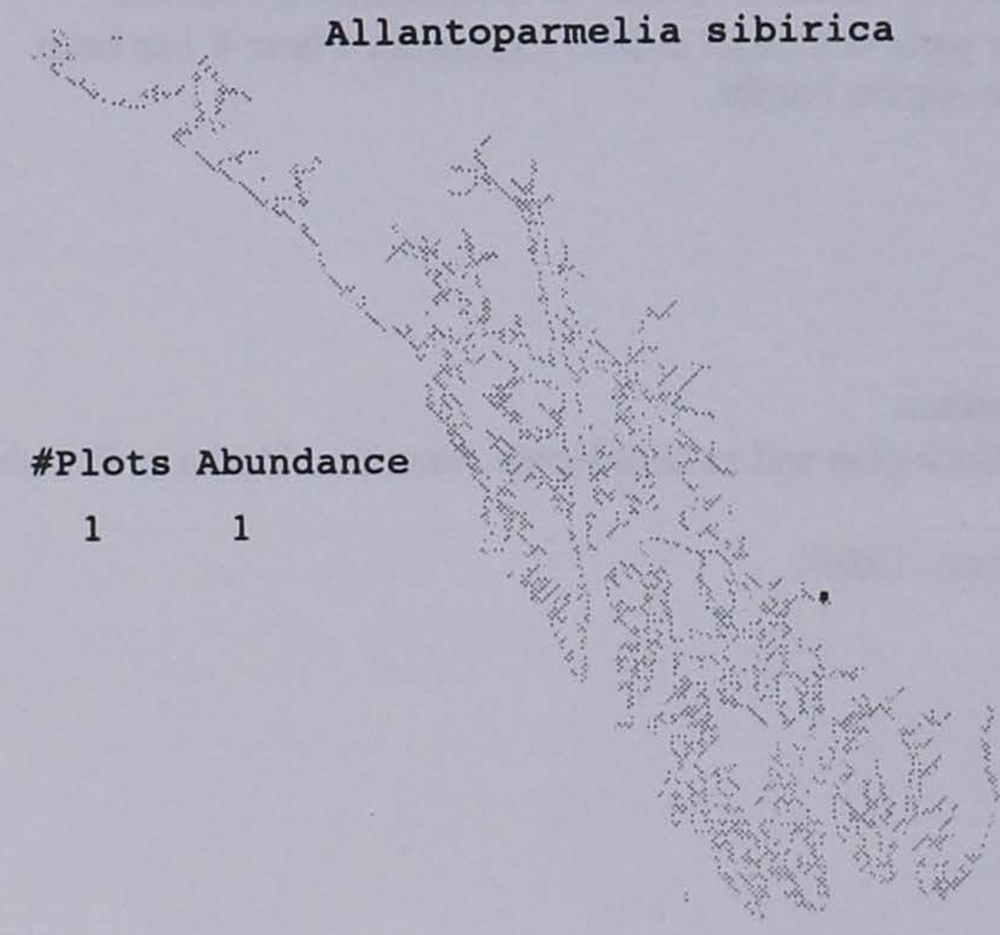
#Plots	Abundance
25	+
8	1
18	2
13	3
30	4
53	5

Allantoparmelia almquistii



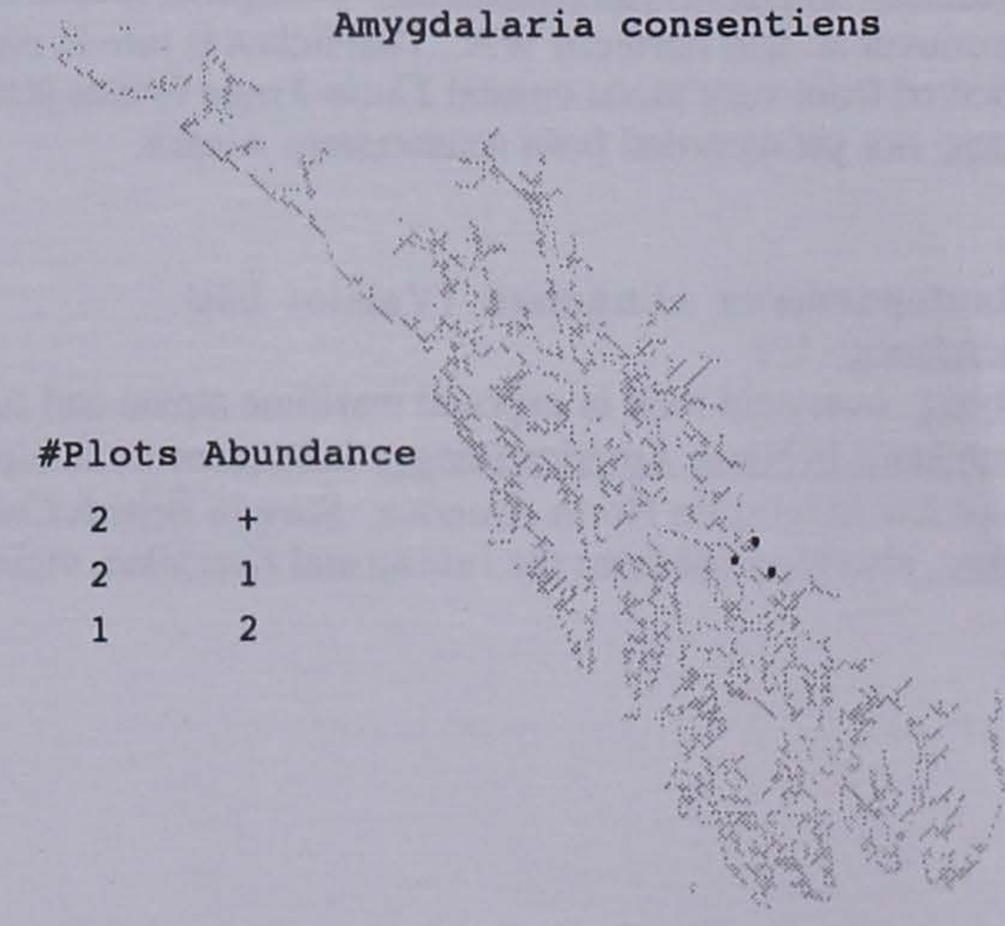
#Plots	Abundance
1	+

Allantoparmelia sibirica



#Plots	Abundance
1	1

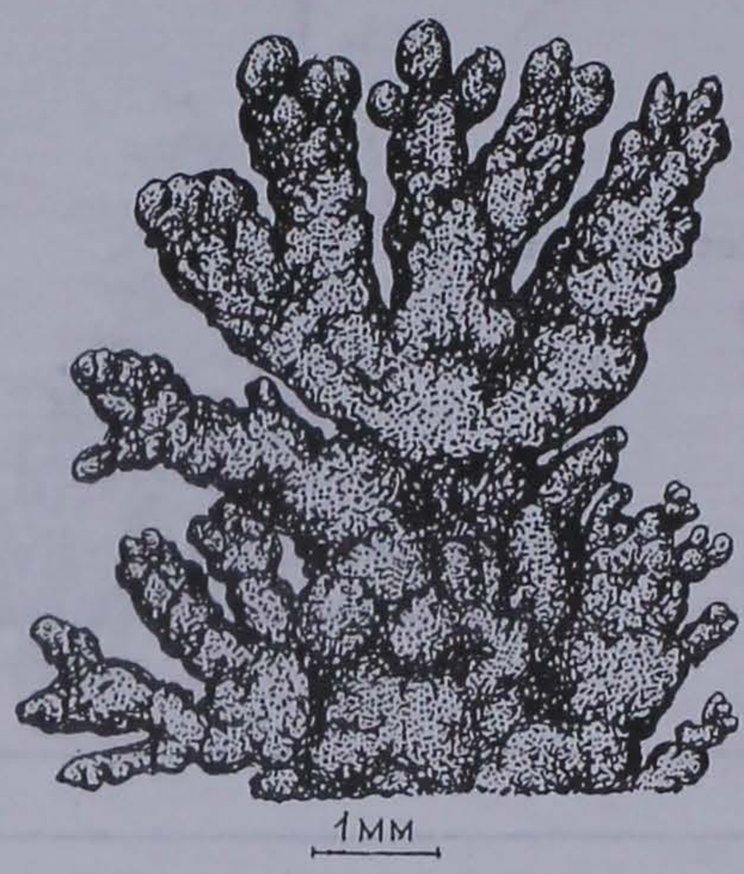
Amygdalaria consentiens



#Plots	Abundance
2	+
2	1
1	2

Allantoparmelia alpicola (Th. Fr.) Essl.
Abundance: 0, infrequent.
Habitat: over acid rock in exposed inland alpine and subalpine localities.
Abundance in North America/Range: common; circumpolar arctic-alpine, Alaska to Colorado.
Notes: previously collected on Mt. Roberts, near Juneau (Krog, 1968).

Allantoparmelia sibirica Zahlbr.
Abundance: 1, rare.
Habitat: over rock, our collection above 1,000 m in the mainland alpine.
Abundance in North America/Range: known only from eastern Siberia (Thomson, 1984) and Kamchatka (Mikulin, 1990).
Notes: first report in North America.



Allantoparmelia alpicola

Amygdalaria consentiens (Nyl.) Hertel, Brodo & M. Inoue
Abundance: 4, common?
Habitat: on rock and soil in the alpine.
Abundance in North America/Range: rare to infrequent; known from British Columbia, Greenland, Europe (where it is more common) and Asia.
Notes: first Alaskan records. Found at half the alpine sites visited.

Amygdalaria elegantior (Magnusson) Hertel & Brodo
Abundance: 3, ?
Habitat: on rock in alpine and subalpine and also at sea level.
Abundance in North America/Range: infrequent; circumpolar arctic-alpine. Alaska and eastern North American arctic.

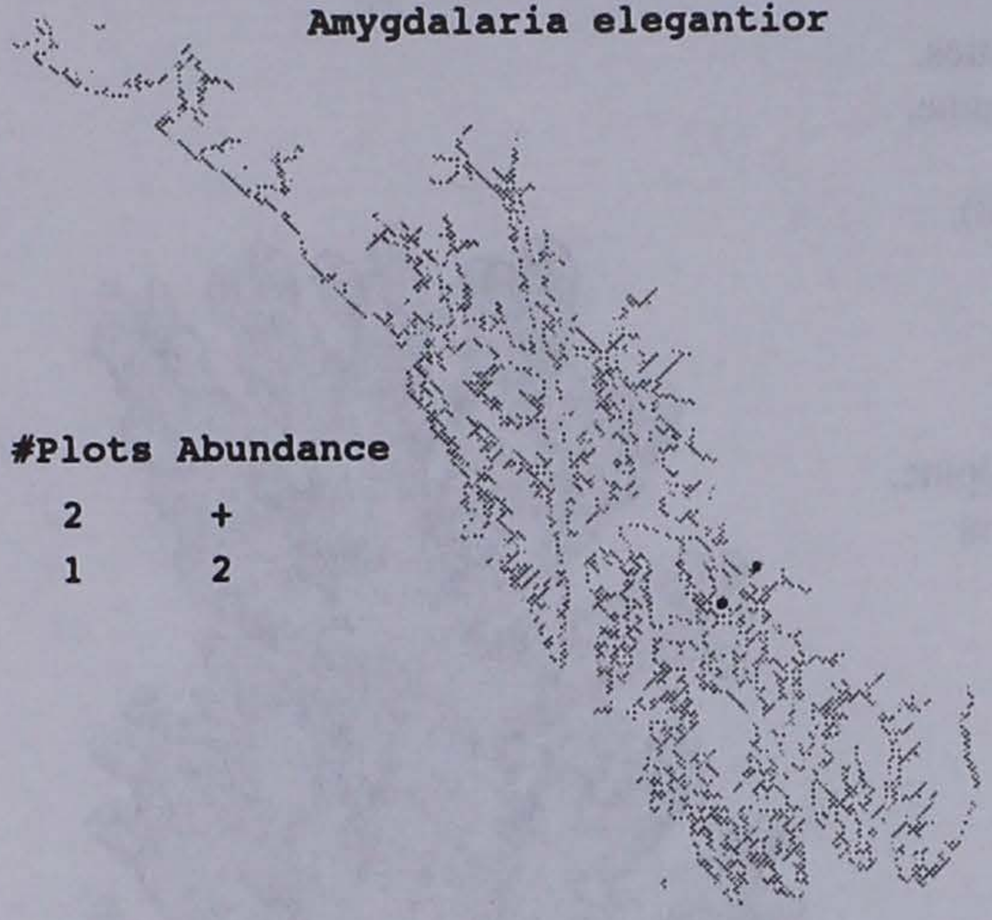
Amygdalaria haidensis Brodo & Hertel
Abundance: 1, ?
Habitat: on rock. Our collection along a high elevation mainland lake shore.
Abundance in North America/Range: endemic to the Queen Charlotte Islands (British Columbia) and southeastern Alaska.
Notes: first record in southeastern Alaska.

Amygdalaria panaeola (Ach.) Hertel & Brodo
Abundance: 4, ?
Habitat: on rock in alpine and subalpine and also at sea level.
Abundance in North America/Range: infrequent; circumpolar arctic-alpine, Alaska to Washington in North America.

Amygdalaria subdissentiens (Nyl.) M. Inoue & Brodo
Abundance: 1, ?
Habitat: on shoreline rocks in or just above the salt-spray zone, and on exposed alpine ridges.
Abundance in North America/Range: rare; Siberia, Japan and the northwest coast of North America.

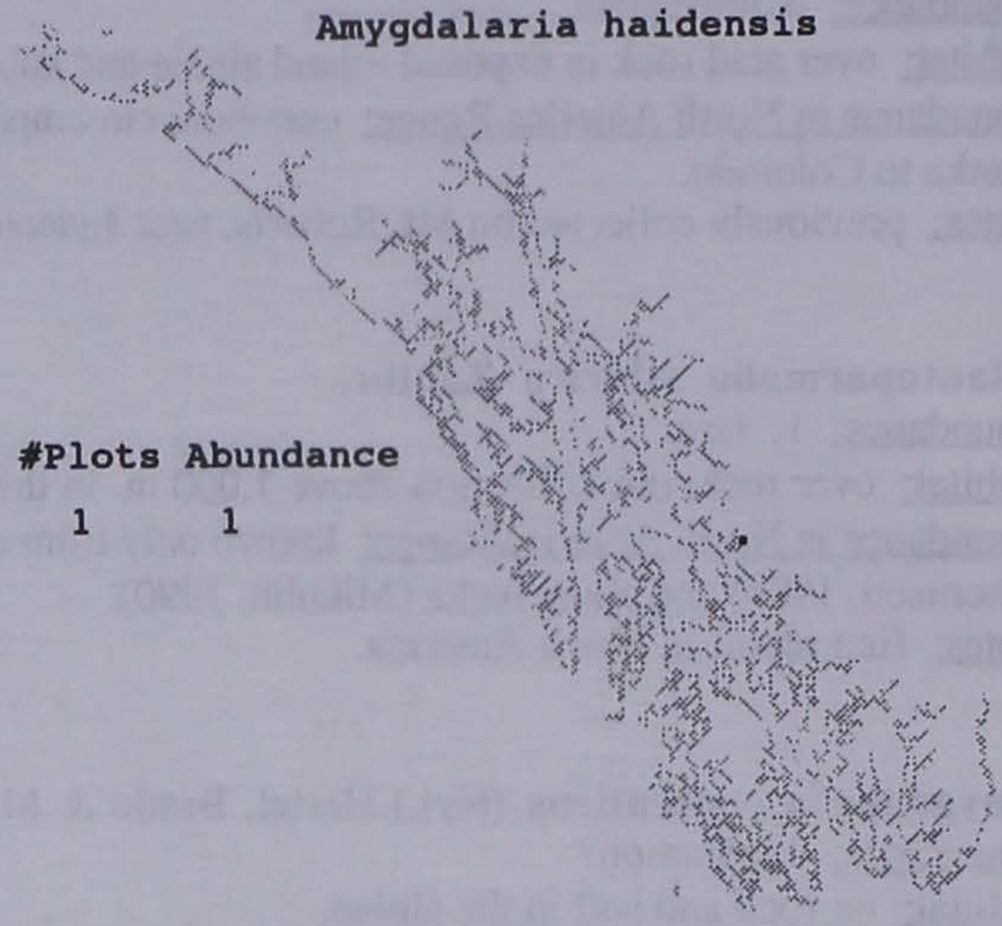
Arctomia delicatula Th. Fr.
Abundance: 1, rare.
Habitat: on *Pinus contorta*.
Abundance in North America/Range: circumpolar arctic-alpine. Infrequent in North America where it is known from arctic Canada.
Notes: southern range extension. Growinh over mosses, other lichens, on soil , humus and old wood in the American Arctic (Thomson, 1984). Probably often overlooked because of its small size. Similar to *Massalongia carnosa*.

Amygdalaria elegantior



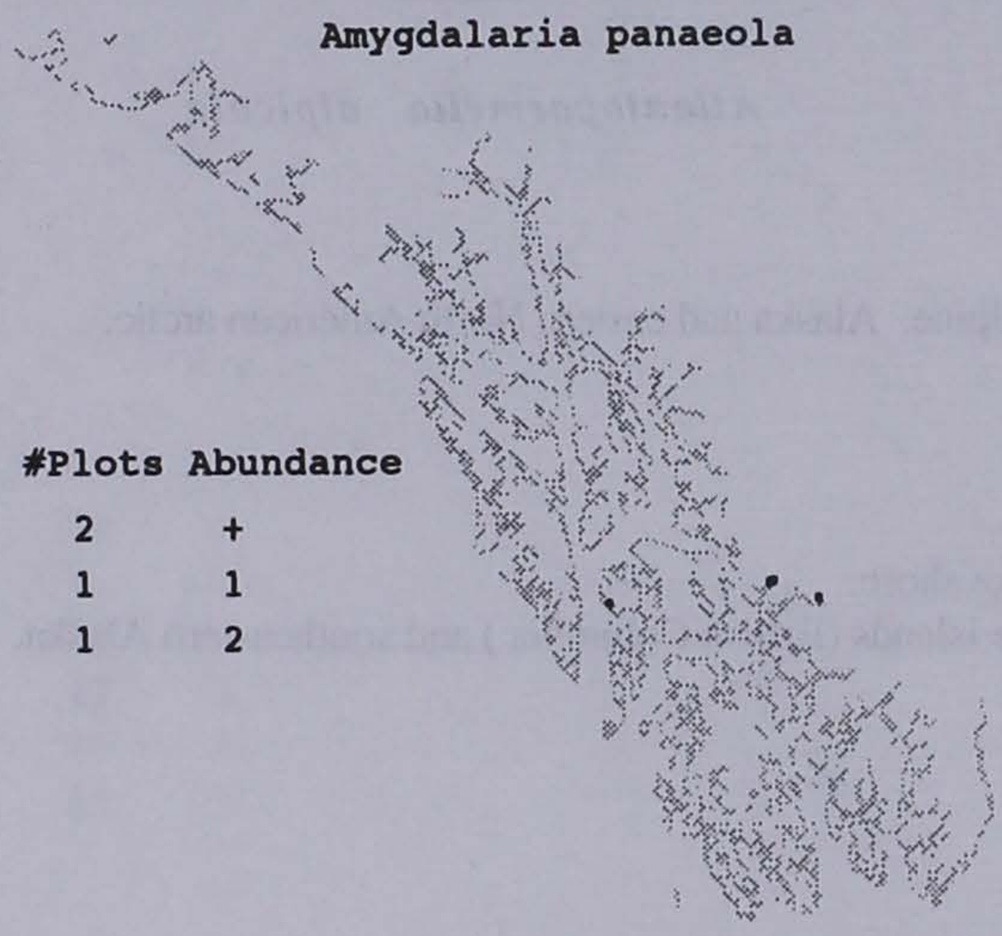
#Plots	Abundance
2	+
1	2

Amygdalaria haidensis



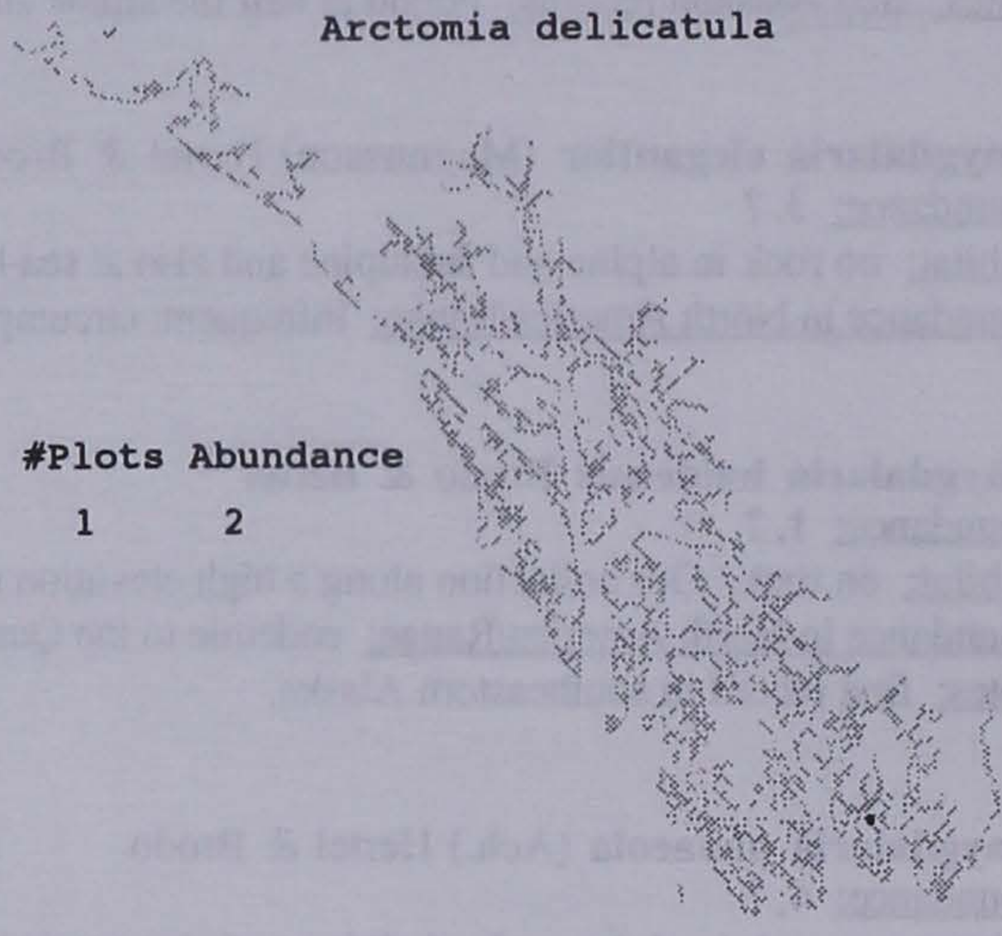
#Plots	Abundance
1	1

Amygdalaria panaeola



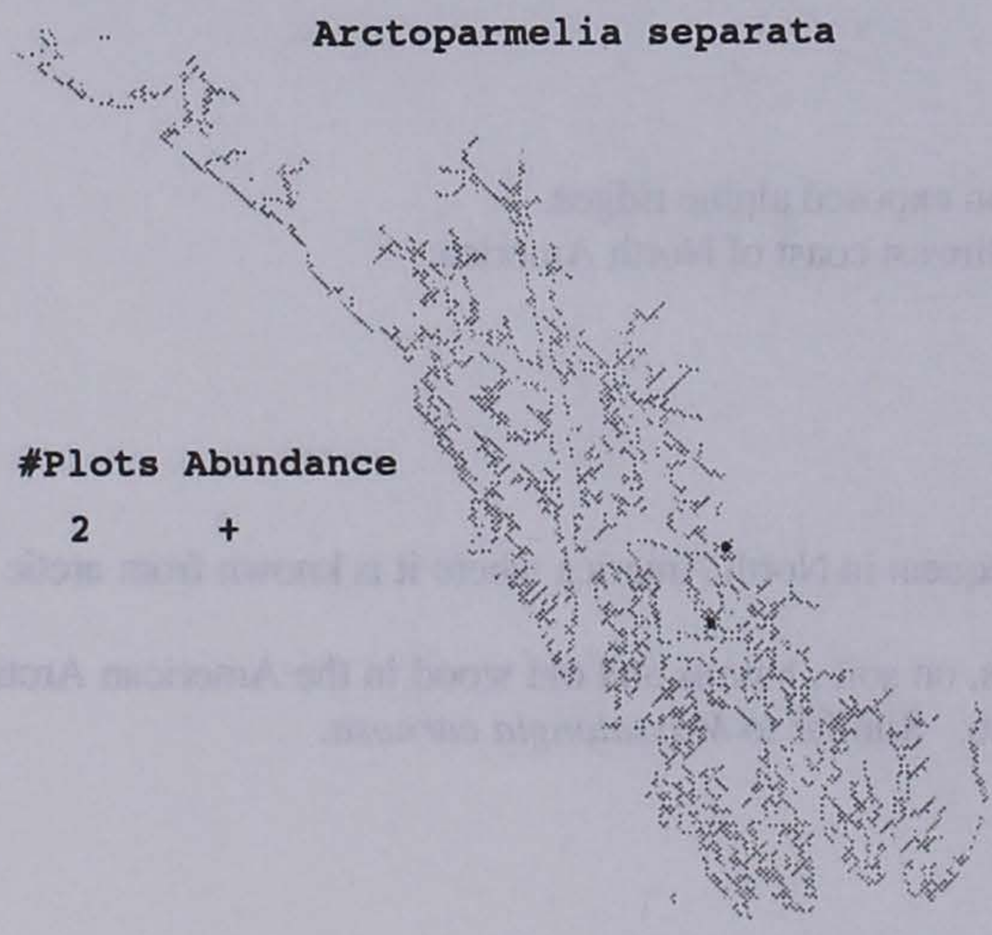
#Plots	Abundance
2	+
1	1
1	2

Arctomia delicatula



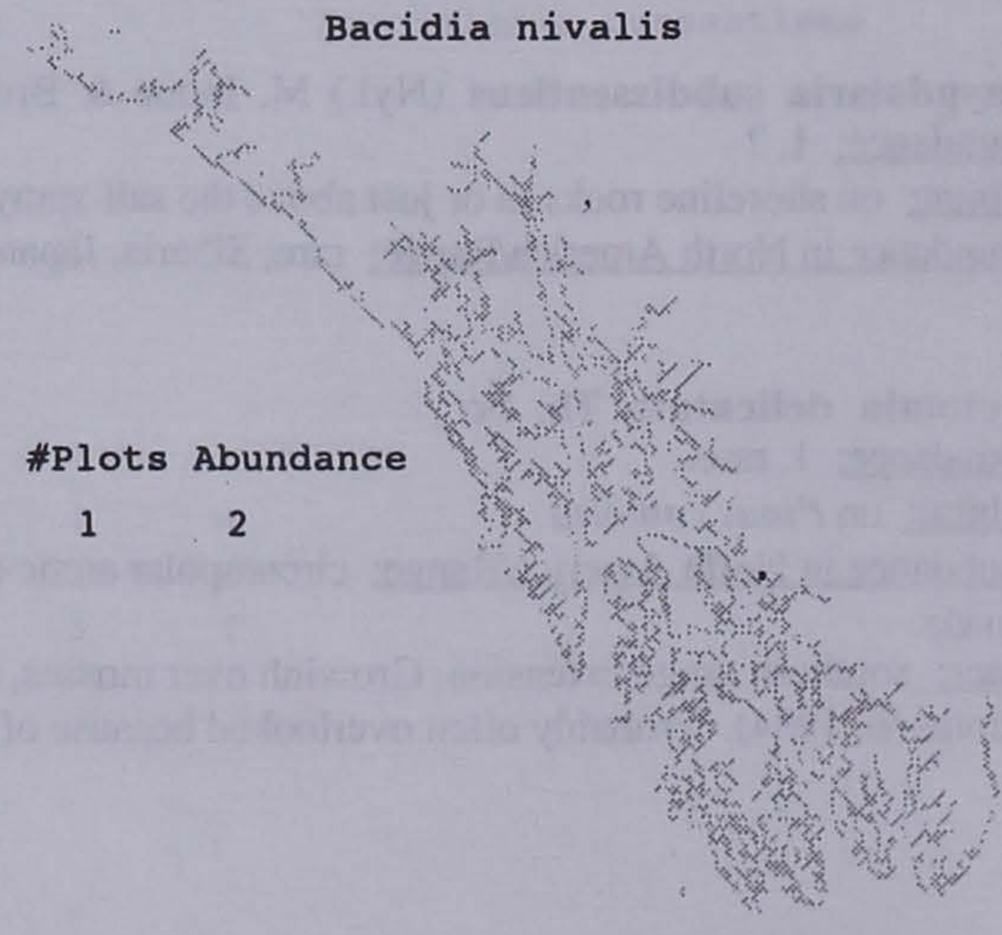
#Plots	Abundance
1	2

Arctoparmelia separata



#Plots	Abundance
2	+

Bacidia nivalis



#Plots	Abundance
1	2

Arctoparmelia centrifuga (L.) Hale
Abundance: 1, ?
Habitat: on rock.
Abundance in North America/Range: common; circumpolar arctic-alpine.

Arctoparmelia incurva (Pers.) Hale
Abundance: 0, ?
Habitat: expected on siliceous rocks in full sun.
Abundance in North America/Range: common; circumpolar arctic-alpine.
Notes: collected by R. O'Clair (University of Alaska, Southeast).

Arctoparmelia separata (Th. Fr.) Hale
Abundance: 2, ?
Habitat: our collections on rock at sea level. Also known to grow over mosses and on humus (Thomson, 1984).
Abundance in North America/Range: common; circumpolar arctic-alpine, Alaska to northern British Columbia.
Notes: rare in British Columbia where it is collected from the alpine and subalpine.

Arthonia punctiformis Ach.
Abundance: 0, ?
Habitat: on *Alnus*.
Abundance in North America/Range: common; Europe and North America
Notes: reported from Augustine Bay on Dall Island (Herre, 1919).

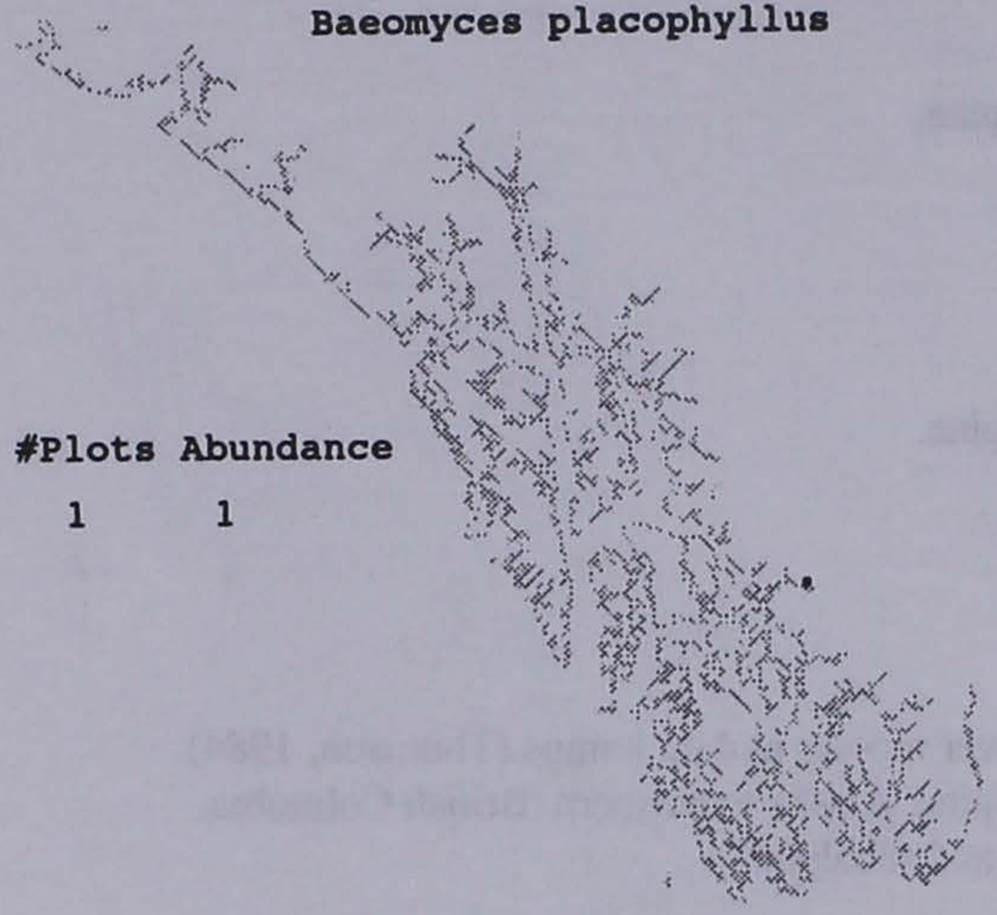
Arthrorhaphis citrinella (Ach.) Poelt
Abundance: 0, ?
Habitat: Heusser's collection from the high alpine (1510 m.). On soil and humus.
Abundance in North America/Range: not well understood in North America; bipolar, at high altitudes in tropical and subtropical regions.
Notes: reported from the Juneau Ice Field (Heusser, 1954).

Asahinea chrysantha (Tuck.) Culb & C. Culb.
Abundance: 0, ?
Habitat: over boulders, plant debris and humus, occasionally on soil (Culberson and Culberson, 1965).
Abundance in North America/Range: arctic, amphi-Beringian west to Baffin Island in North America.
Notes: reported from Mendenhall Valley near Juneau (McCullough, 1965).

Aspicilia gibbosa (Ach.) Körber
Abundance: 0, ?
Habitat: on rocks.
Abundance in North America/Range: eastern to western United States and Canada.
Notes: reported from Glacier Bay (Cummings, 1904).

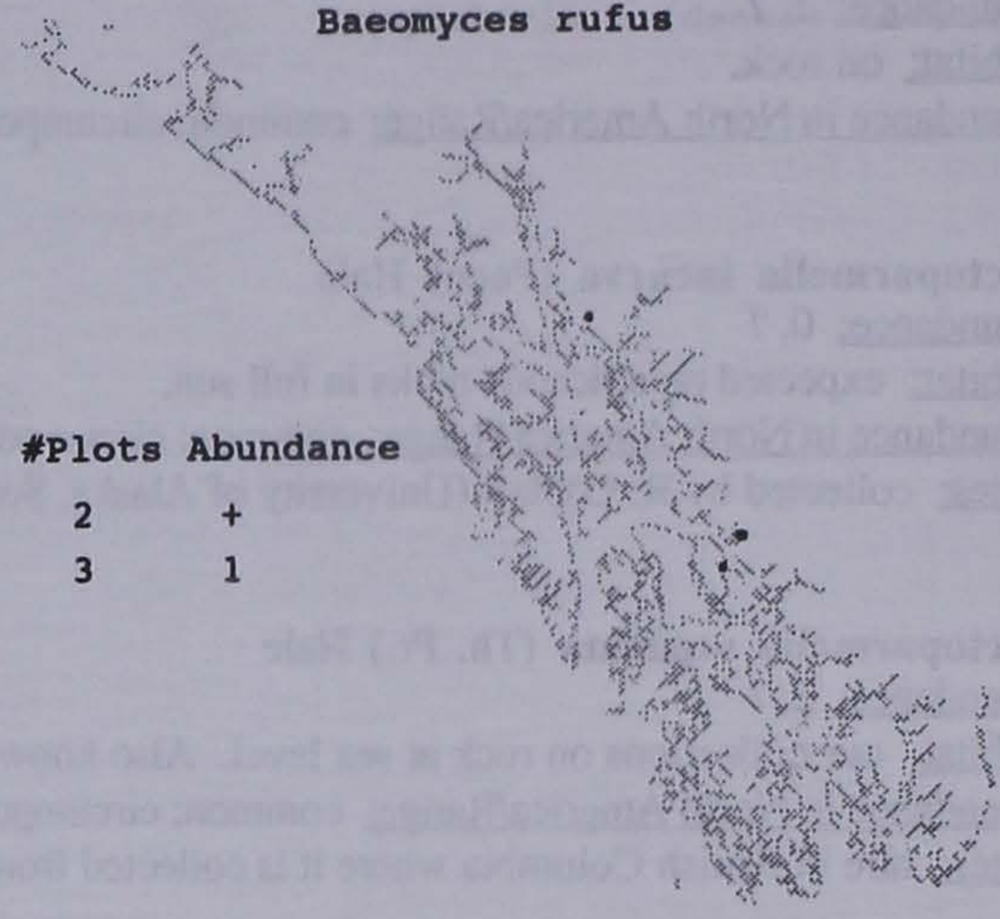
Bacidia nivalis Follm.
Abundance: 1, ?
Habitat: single collection from alpine rocks on the mainland.
Notes: northern range extension.

Baeomyces placophyllus



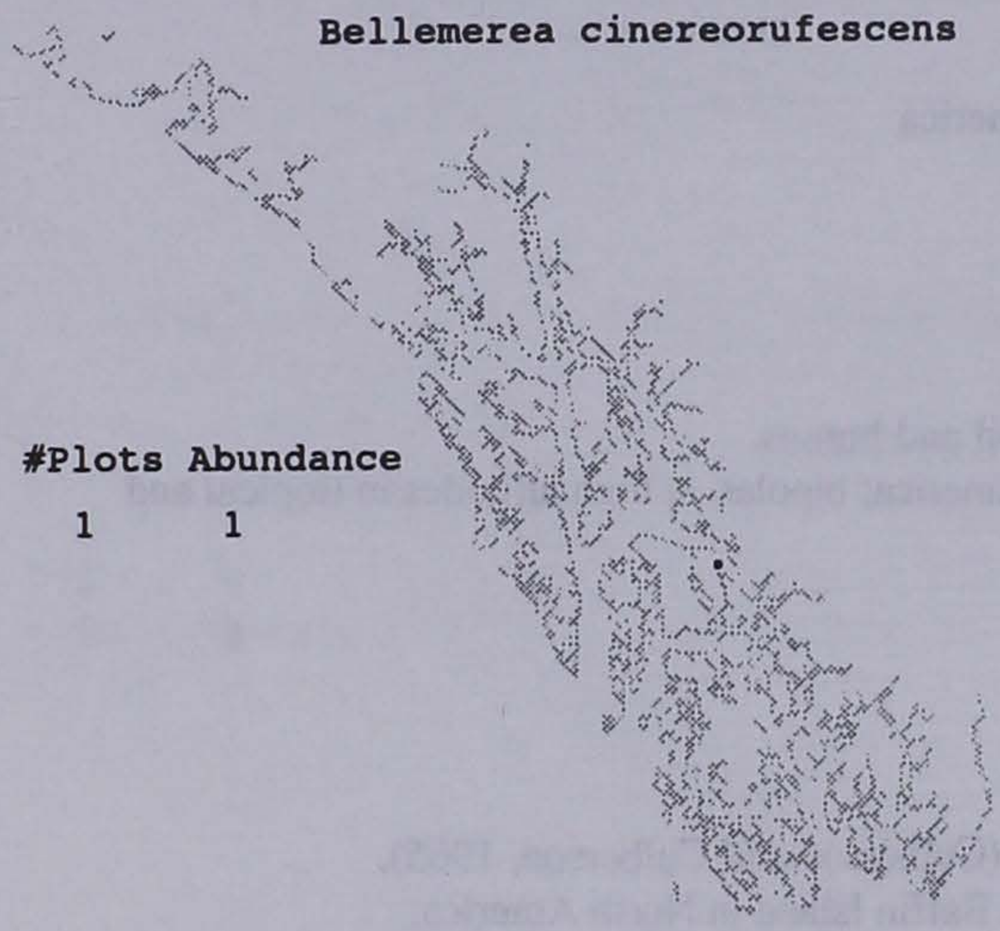
#Plots	Abundance
1	1

Baeomyces rufus



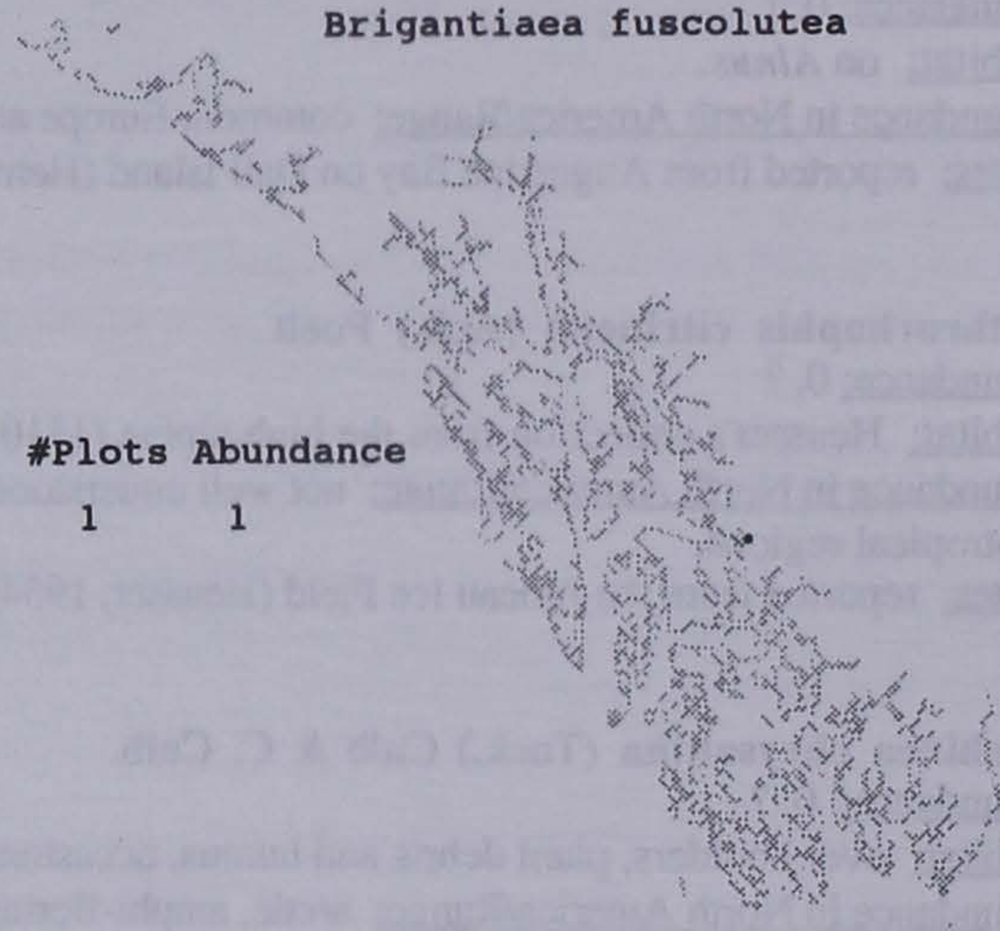
#Plots	Abundance
2	+
3	1

Bellemerea cinereorufescens



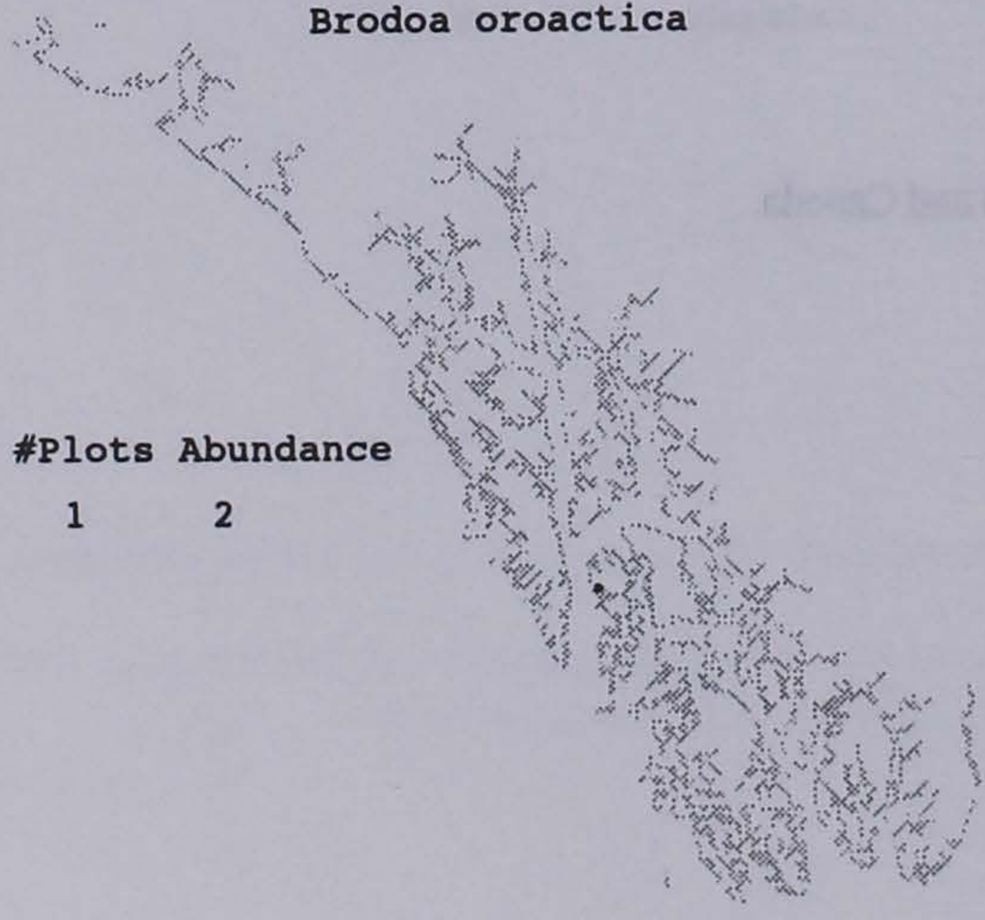
#Plots	Abundance
1	1

Brigantiaea fuscolutea



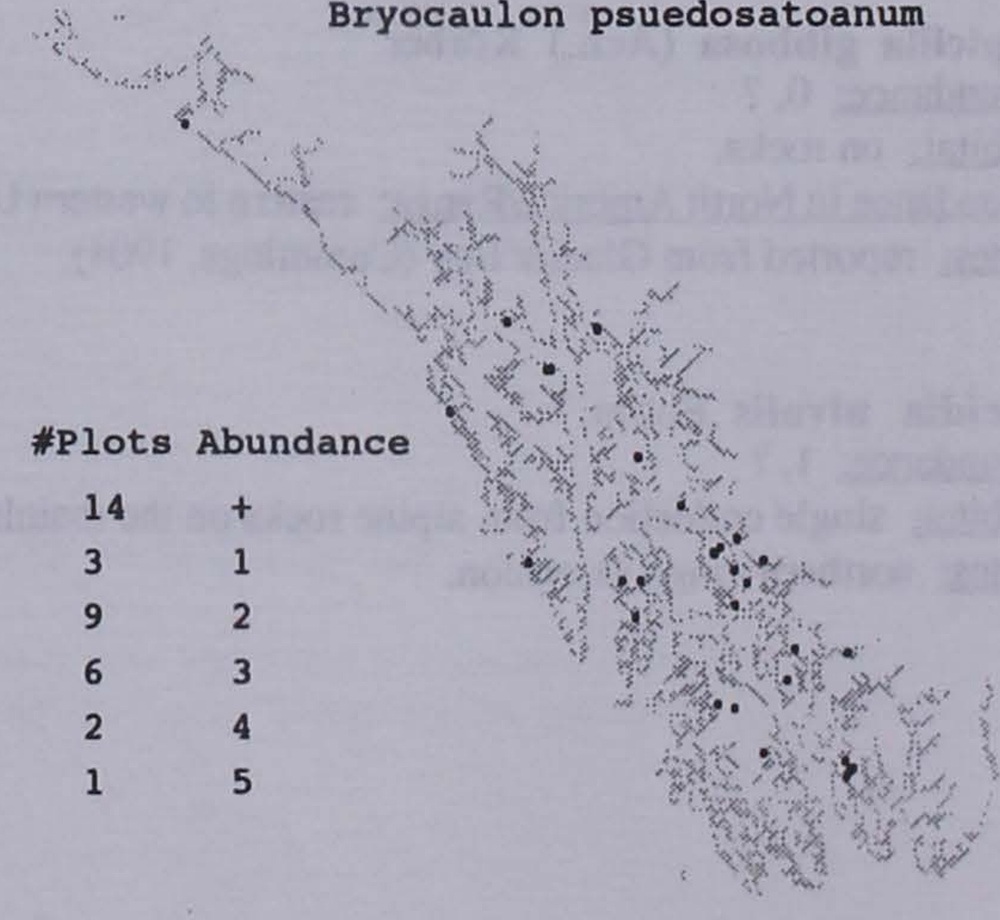
#Plots	Abundance
1	1

Brodoa oroactica



#Plots	Abundance
1	2

Bryocaulon psuedosatoanum

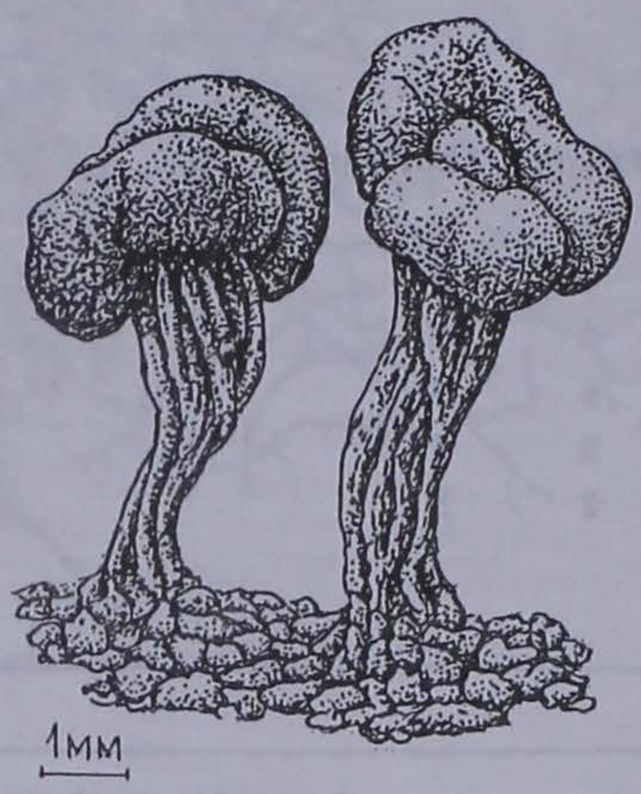


#Plots	Abundance
14	+
3	1
9	2
6	3
2	4
1	5

Bacidia phacodes Körber
Abundance: 1, ?
Habitat: on *Alnus* in the Stikine River flats.
Abundance in North America/Range: infrequently collected and poorly known in western North America, common in Europe.

Baeomyces placophyllus Ach.
Abundance: 1, ?
Habitat: single collection over moss from the mainland alpine. Also known to occur on sandy, clayey and histic soils (Thomson, 1967a).
Abundance in North America/Range: infrequent; circumpolar boreal, disjunct population in Java.

Baeomyces rufus (Huds,) Rebent.
Abundance: 1, ?
Habitat: single collection from rocks above high tide line.
Abundance in North America/Range: common; circumpolar low arctic and boreal, south to California in western North America.
Notes: Expected on soil and rocks, especially in locations with seeping water (Thomson, 1967a).



Baeomyces rufus

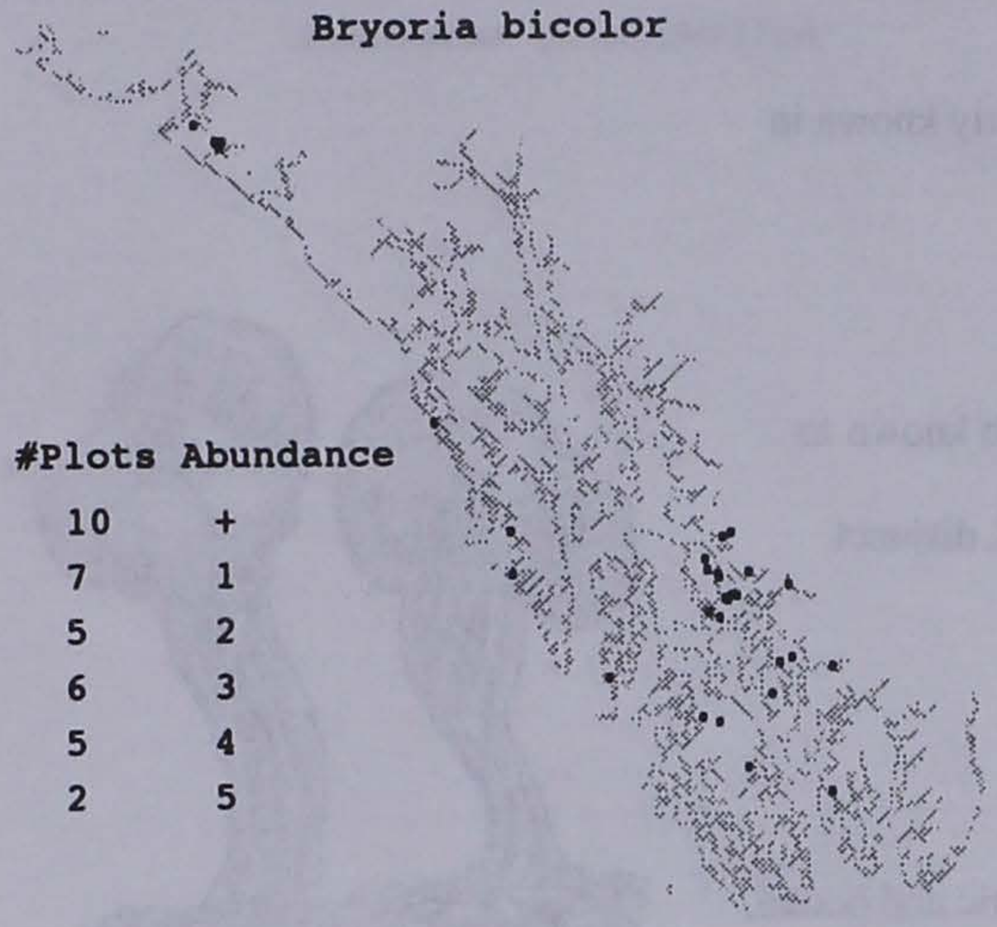
Bellemerea cinereorufescens (Ach.) Clauz. & Roux
Abundance: 1, ?
Habitat: single collection from rock in alpine of Kupreanof Island.
Abundance in North America/Range: common in arctic-alpine habitats of western North America; also known from Europe and one known location each from Newfoundland and Greenland. Possibly circumpolar (Thomson, 1994).

Brigantiaea fuscolutea (Dickson) R. Sant. *in* Poelt & Vezda
Abundance: 1, ?
Habitat: on soil or rock in alpine.
Abundance in North America/Range: rare; probably circumpolar. In arctic North America, Greenland, N. Scotland, Iceland, Faeroes, and Fennoscandia (Purvis et al., 1992).
Notes: also collected by R. O'Clair on Gastineau Peak, Juneau (University of Alaska, Southeast) and from the Queen Charlotte Islands by I. Brodo (personal communication). Other North American collections have been from the Aleutians and the eastern Arctic (Thomson, 1994). Also grows over mosses and small plants .

Brodoa oroarctica (Krog) Goward
Abundance: 1, ?
Habitat: single collection from siliceous rock in the mainland alpine.
Abundance in North America/Range: common; circumpolar arctic-alpine, Alaska to New Mexico.

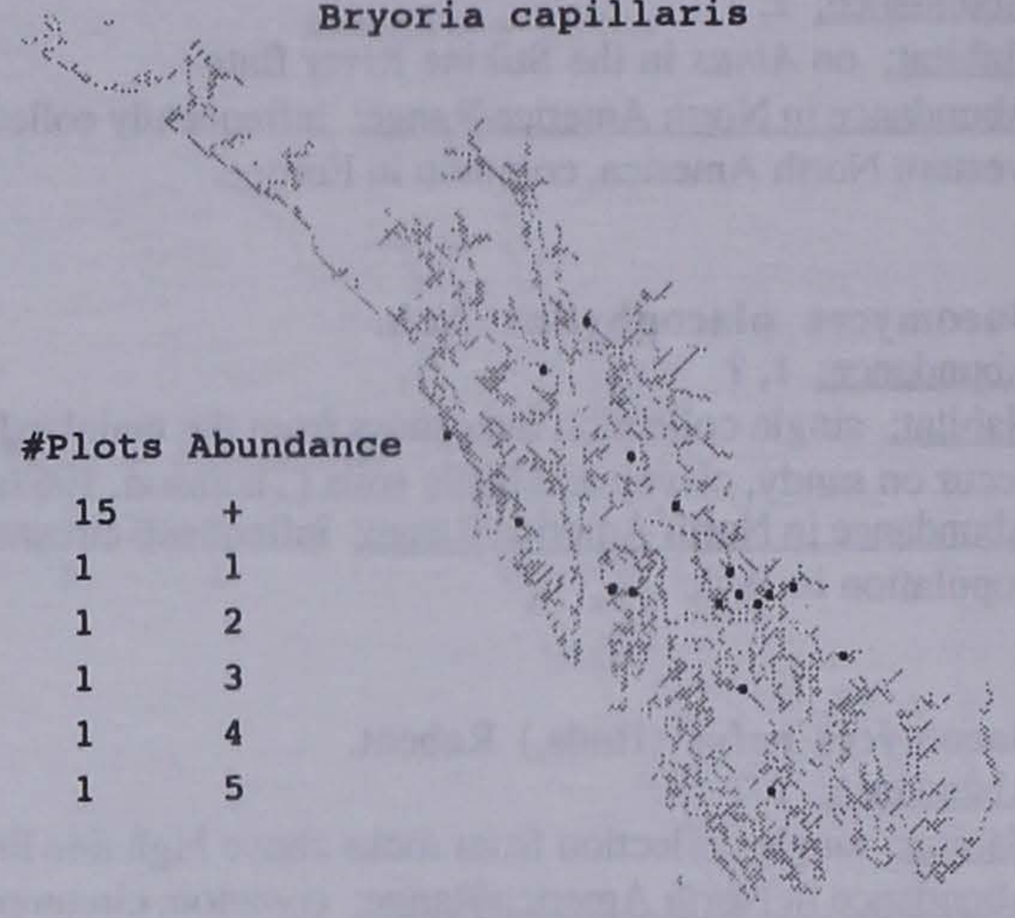
Bryocaulon divergens (Ach.) Kärnef.
Abundance: 1, infrequent.
Habitat: on soil among mosses and other lichens.
Abundance in North America/Range: common; circumpolar arctic-alpine.

Bryoria bicolor



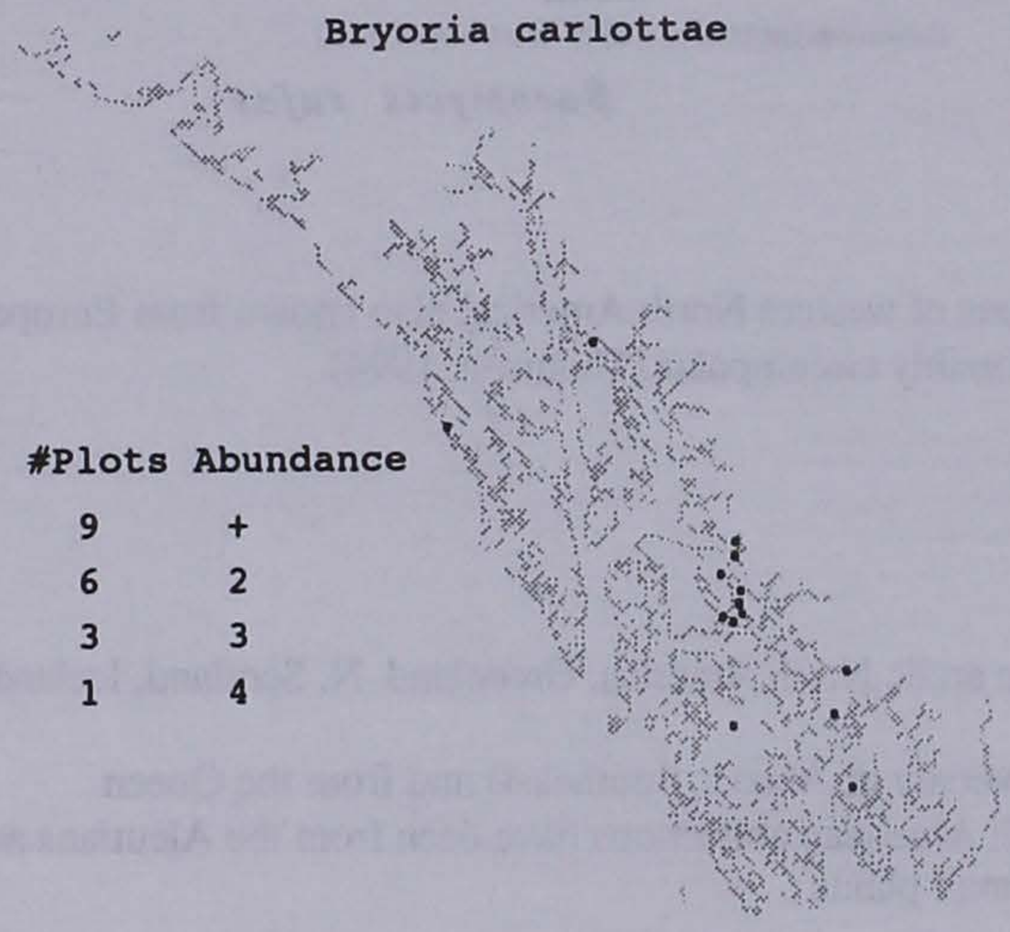
#Plots	Abundance
10	+
7	1
5	2
6	3
5	4
2	5

Bryoria capillaris



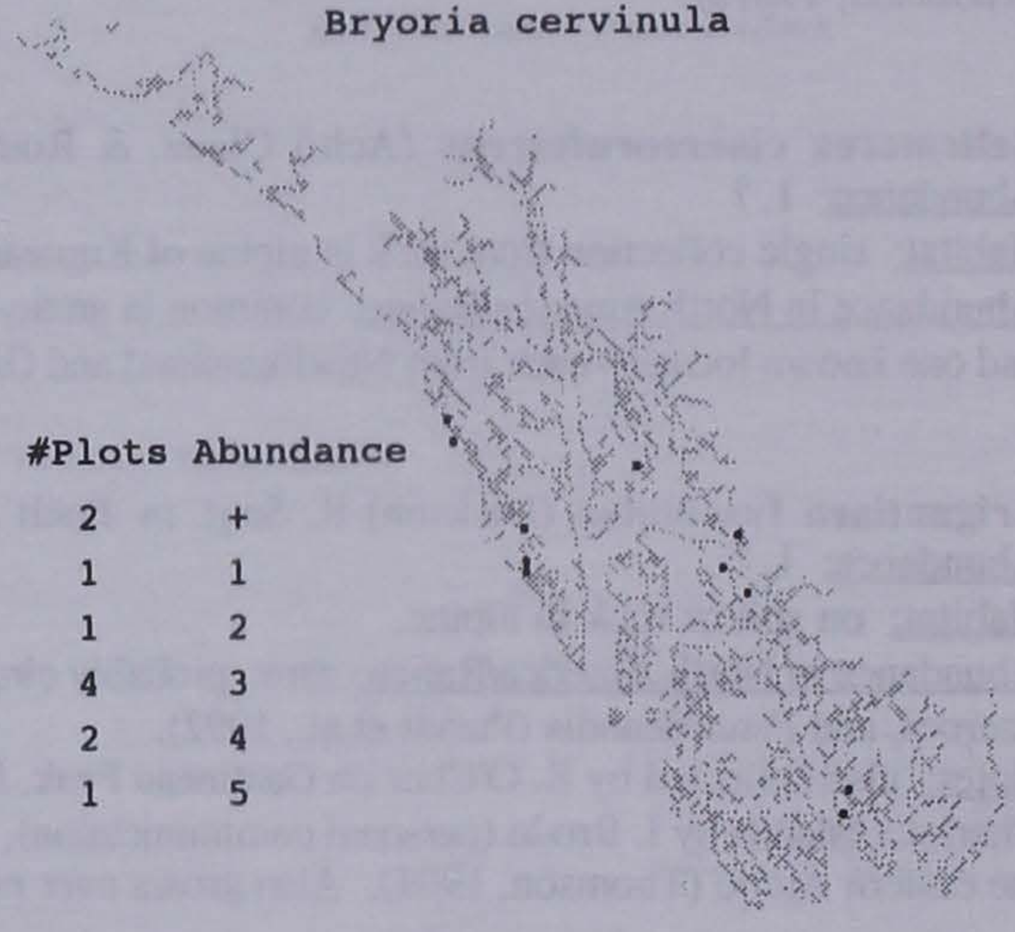
#Plots	Abundance
15	+
1	1
1	2
1	3
1	4
1	5

Bryoria carlottae



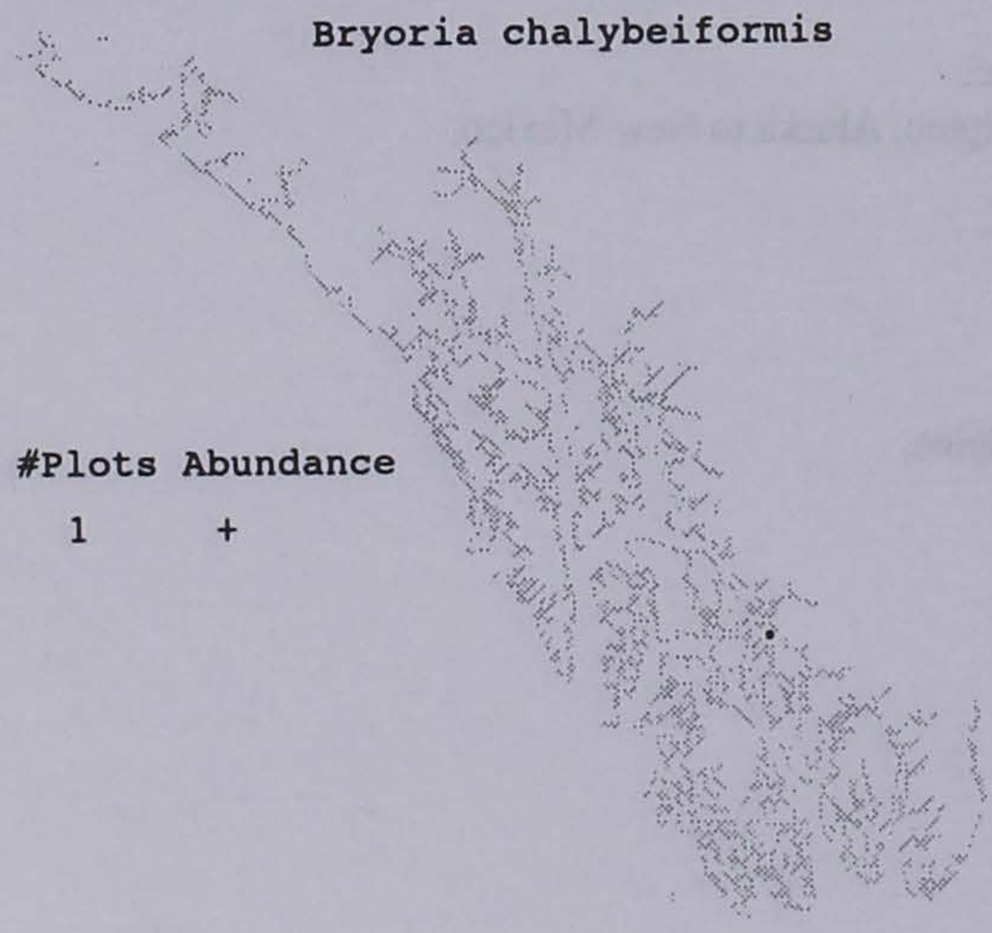
#Plots	Abundance
9	+
6	2
3	3
1	4

Bryoria cervinula



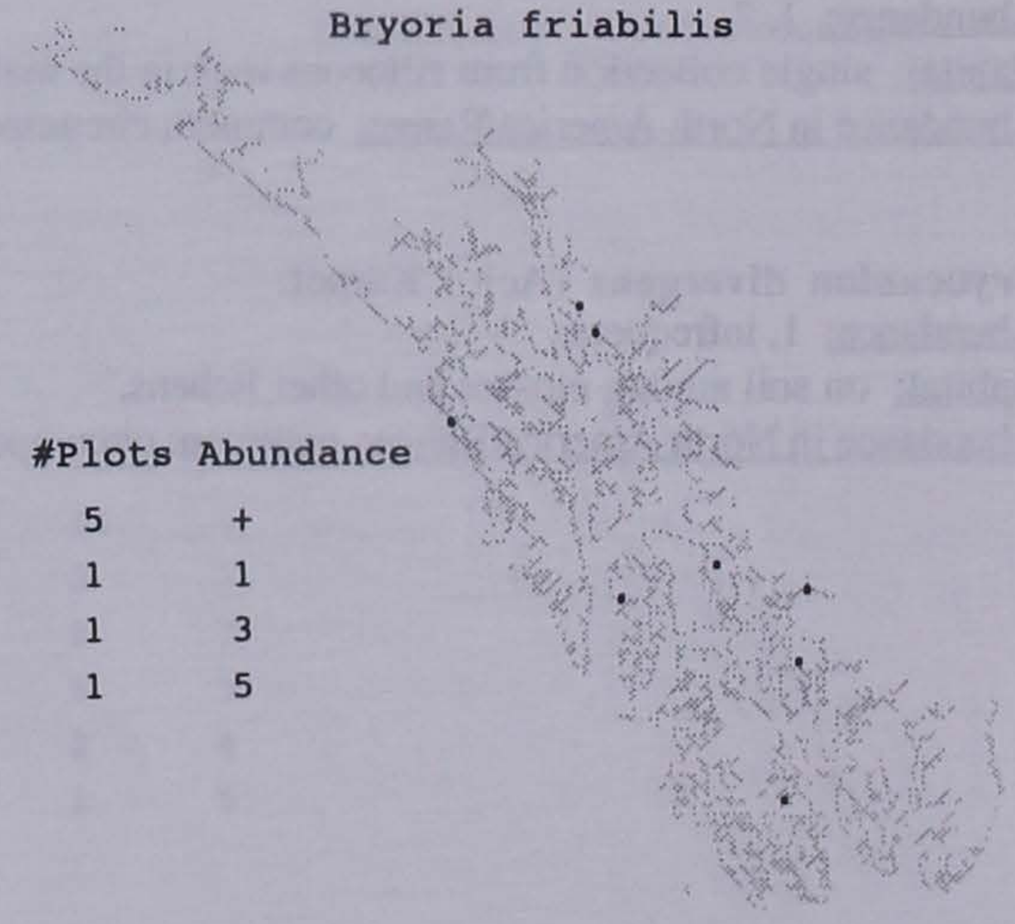
#Plots	Abundance
2	+
1	1
1	2
4	3
2	4
1	5

Bryoria chalybeiformis



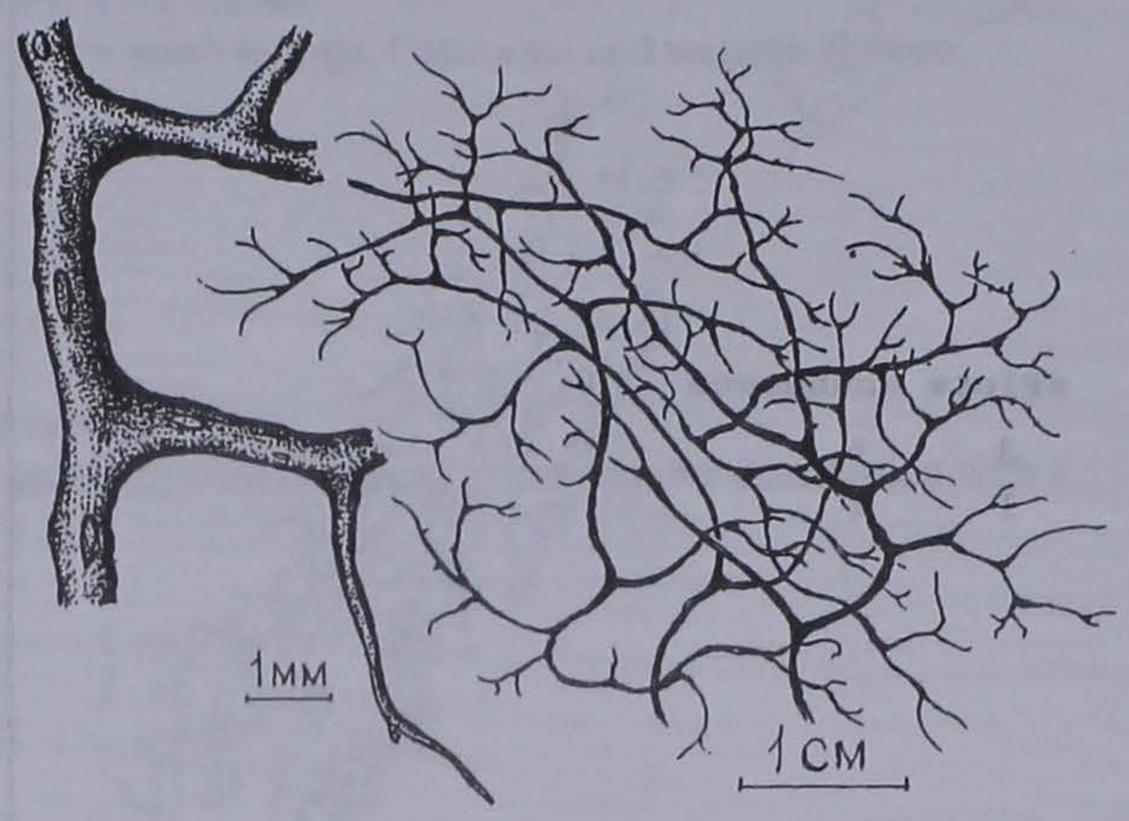
#Plots	Abundance
1	+

Bryoria friabilis



#Plots	Abundance
5	+
1	1
1	3
1	5

Bryocaulon pseudosatoanum (Asahina) Kärnef.
Abundance: 35, common.
Habitat: corticolous on *Pinus*, *Picea*, *Tsuga*, in open forests from low elevations to the subalpine.
Abundance in North America/Range: common in certain habitats; Asia and western North America from Vancouver Is. to southeastern Alaska .

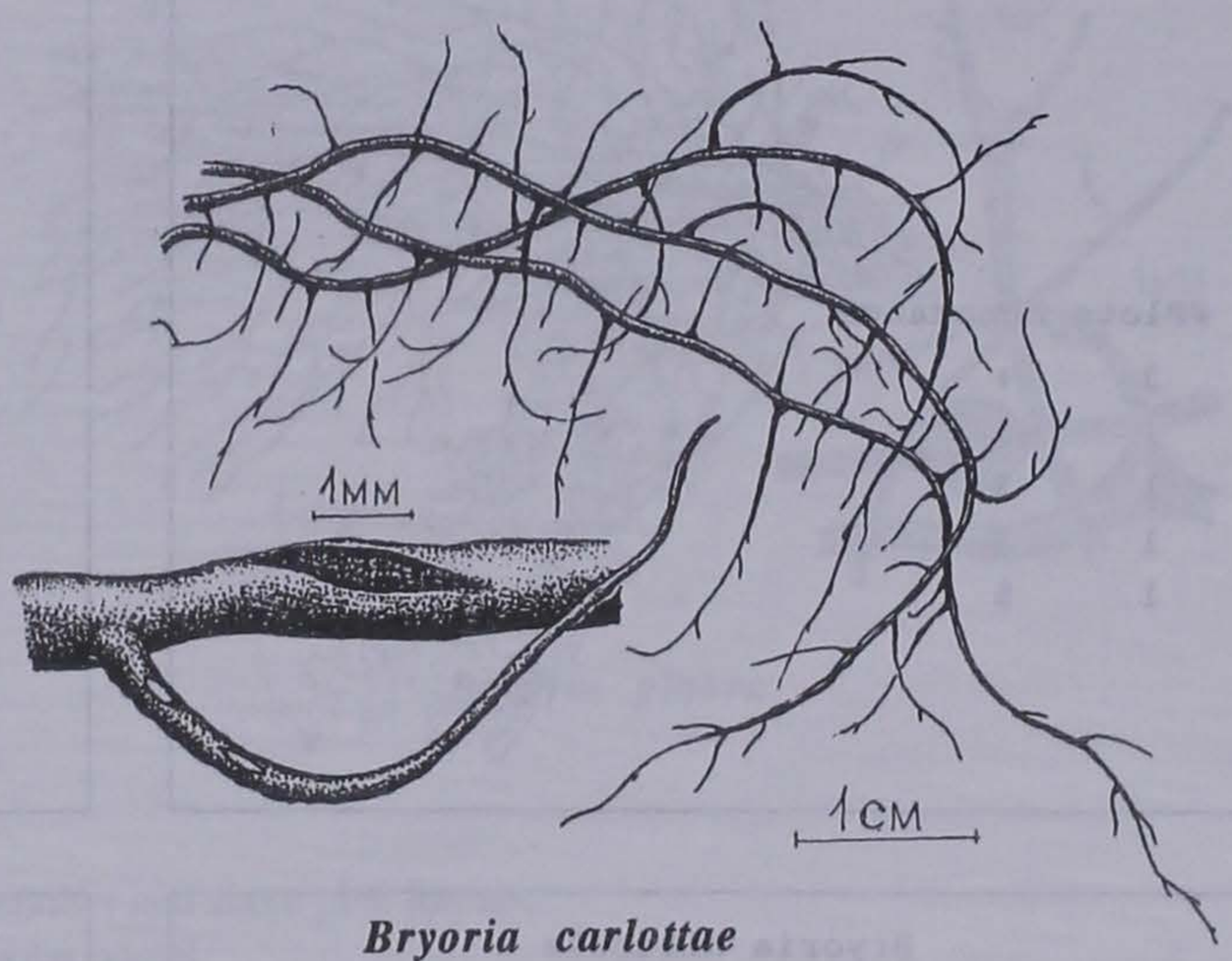


Bryocaulon pseudosatoanum

Bryoria bicolor (Ehrh.) Brodo & D. Hawksw.
Sensitivity: 10.
Abundance: 35, common.
Habitat: corticolous on *Pinus*, *Picea* and *Tsuga*, mainly in open forests from sea level to the subalpine. One collection from rock in the alpine.
Abundance in North America/Range: common; oceanic and sub-oceanic species, occurring on both North American coasts.

Bryoria capillaris (Ach.) Brodo & D. Hawksw.
Sensitivity: 5.7-9.
SO_2 Sensitivity: intermediate, 52-78/-
Abundance: 20, common.
Habitat: corticolous on conifers and deciduous shrubs especially in riparian and beach habitats. From sea level to subalpine.
Abundance in North America/Range: common; circumpolar boreal.

Bryoria carlottae Brodo & D. Hawksw.
Abundance: 19, common.
Habitat: primarily on *Pinus* and *Tsuga* in low elevation shore pine and mixed conifer open forests. Also collected from the subalpine.
Abundance in North America/Range: rare, recently described endemic from the Queen Charlotte Islands.
Notes: northern range extension. First Alaskan records.

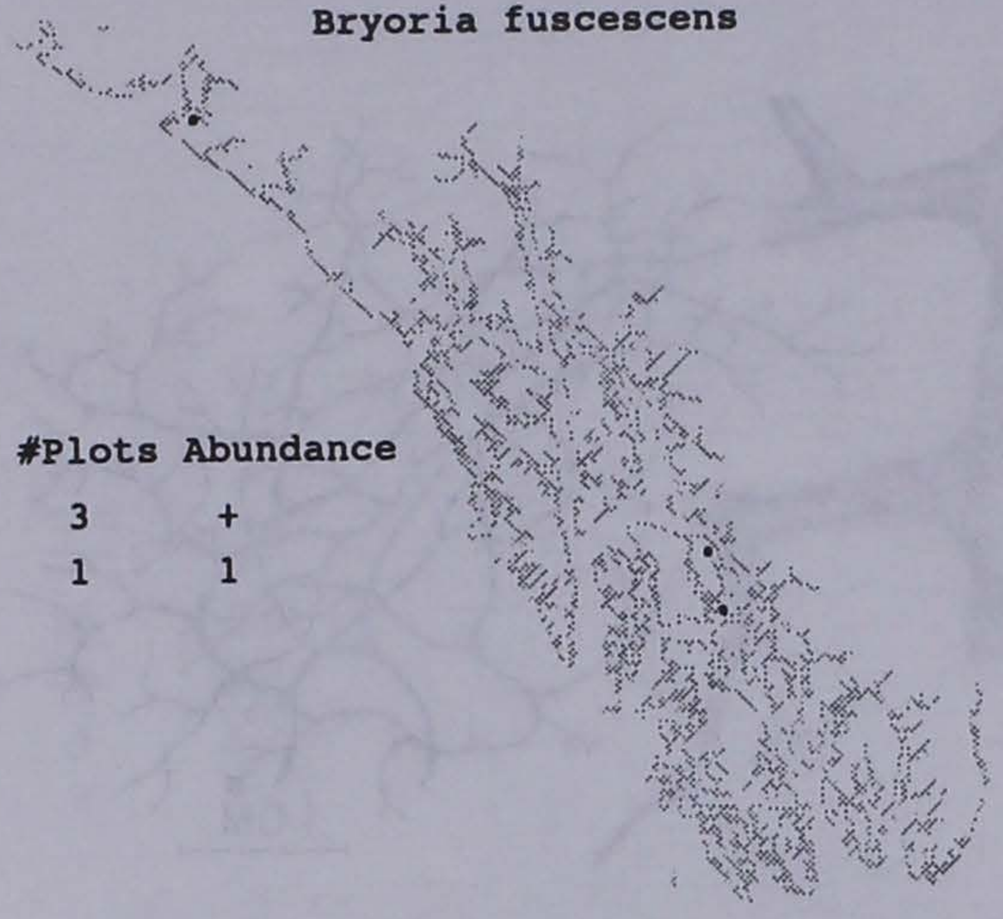


Bryoria carlottae

Bryoria cervinula Mot. ex Brodo & D. Hawksw.
Abundance: 11, infrequent.
Habitat: primarily on open grown *Pinus* and *Tsuga* from low elevation to the subalpine.
Abundance in North America/Range: infrequent; narrow range, mainly southeast Alaska and the Queen Charlotte Islands, where it is rare. North American endemic.

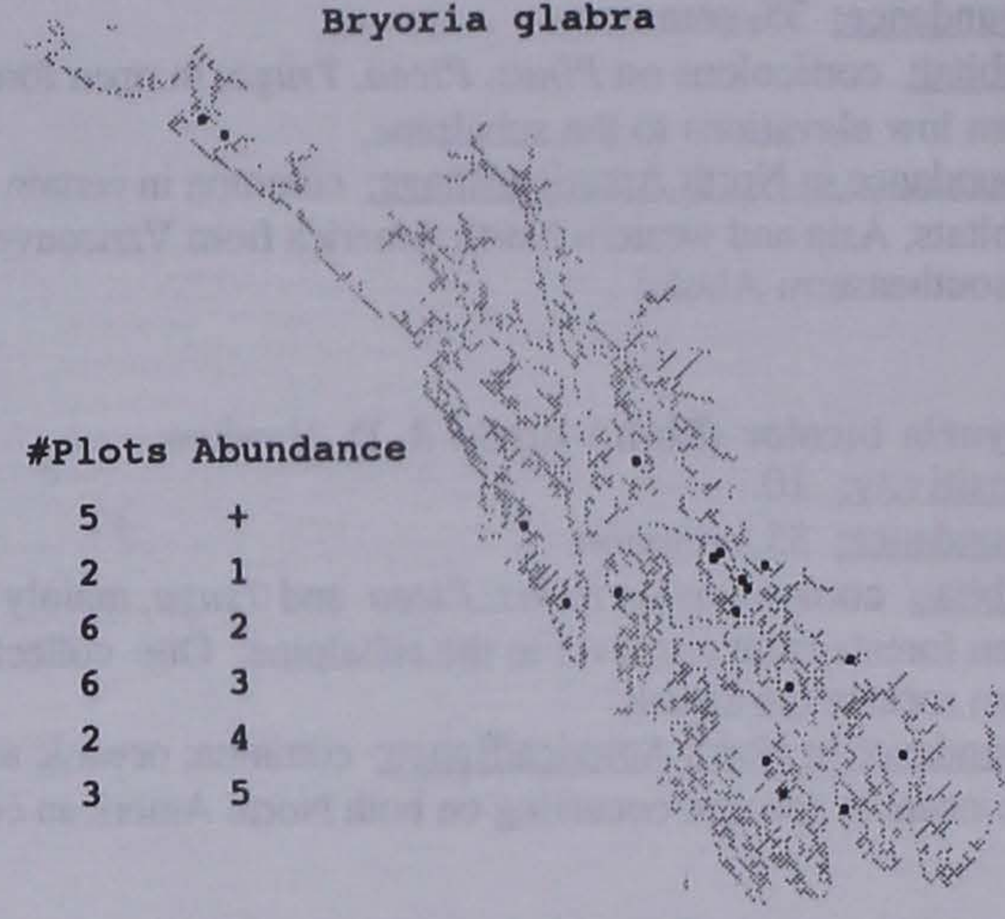
Bryoria chalybeiformis (L.) Brodo & D. Hawksw.
Sensitivity: 7-9.
Abundance: 1, rare.
Habitat: collected once from a totem pole. Coastal, alpine and subalpine in British Columbia (Noble et al., 1987)).
Abundance in North America/Range: common; circumpolar arctic-alpine.

Bryoria fuscescens



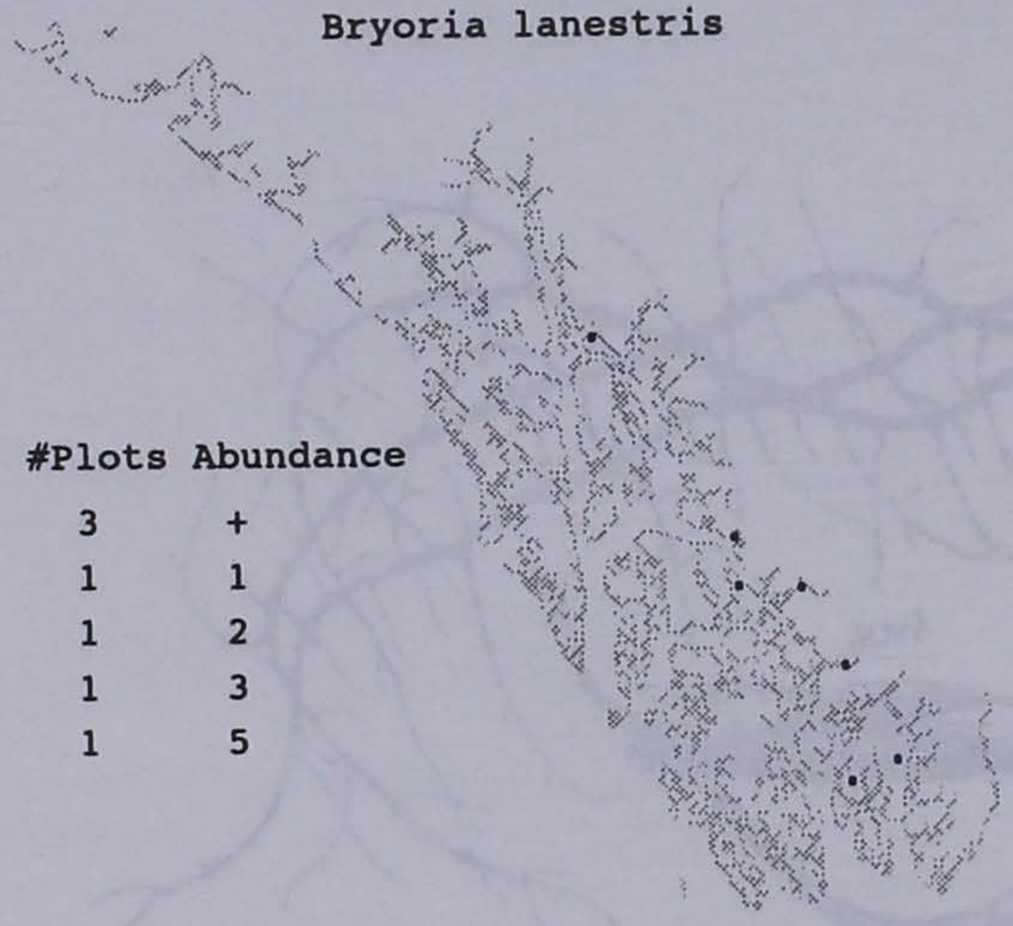
#Plots	Abundance
3	+
1	1

Bryoria glabra



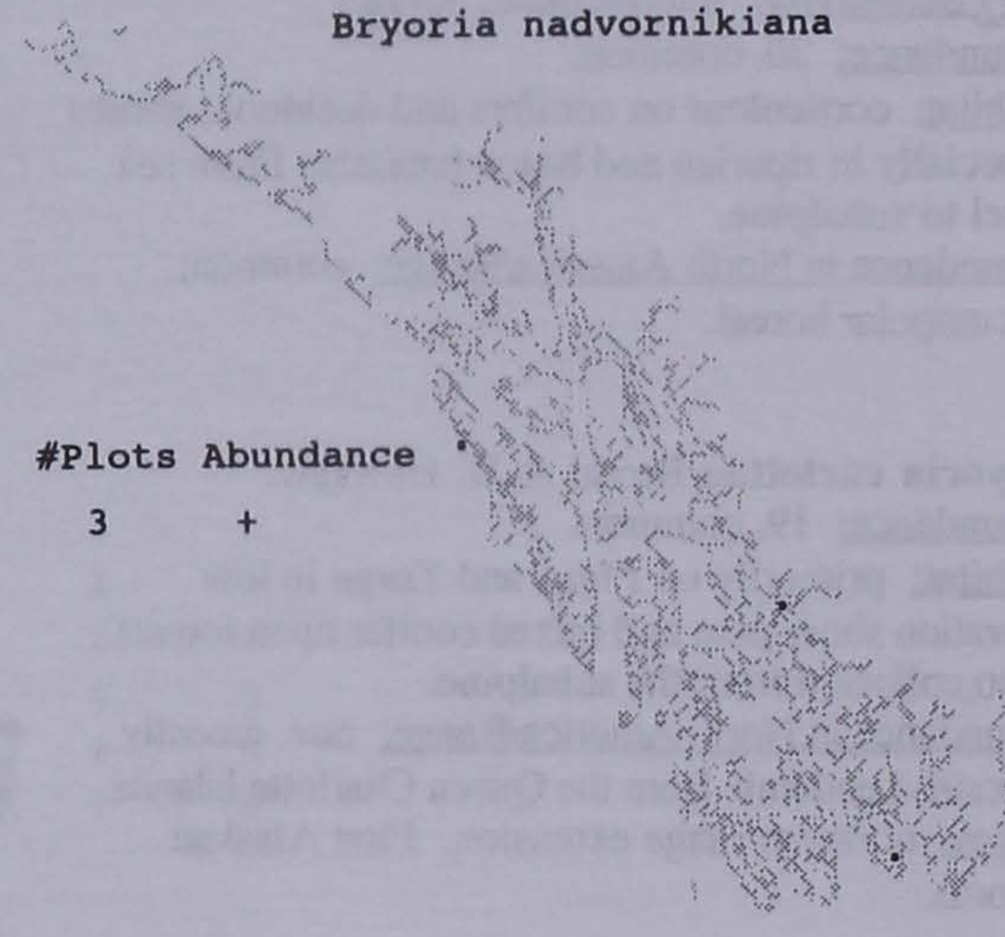
#Plots	Abundance
5	+
2	1
6	2
6	3
2	4
3	5

Bryoria lanestris



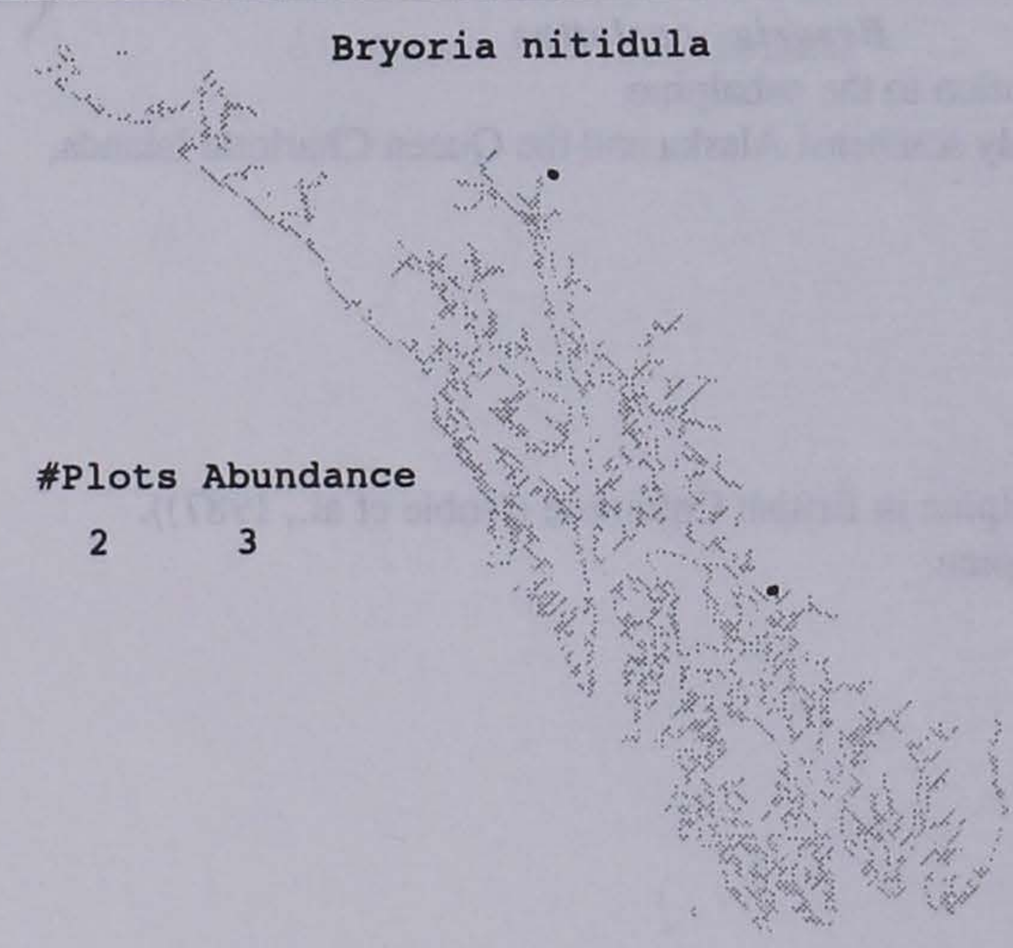
#Plots	Abundance
3	+
1	1
1	2
1	3
1	5

Bryoria nadvornikiana



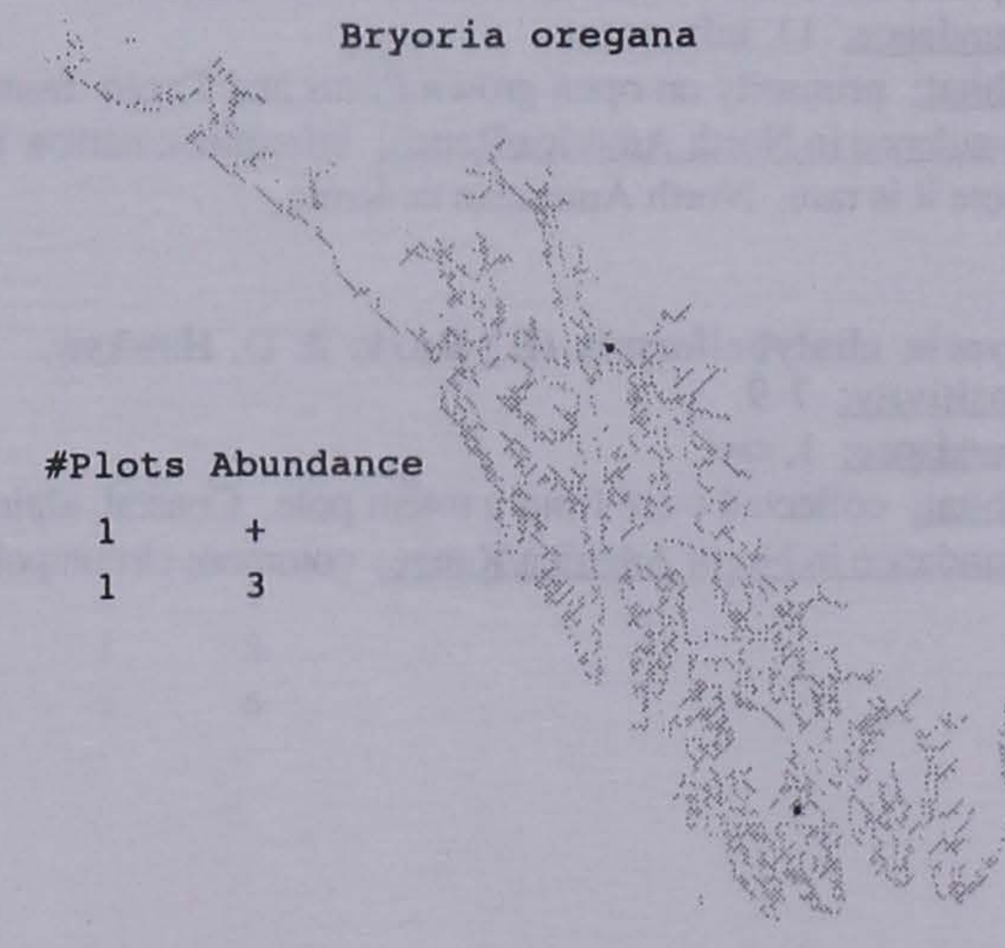
#Plots	Abundance
3	+

Bryoria nitidula



#Plots	Abundance
2	3

Bryoria oregana



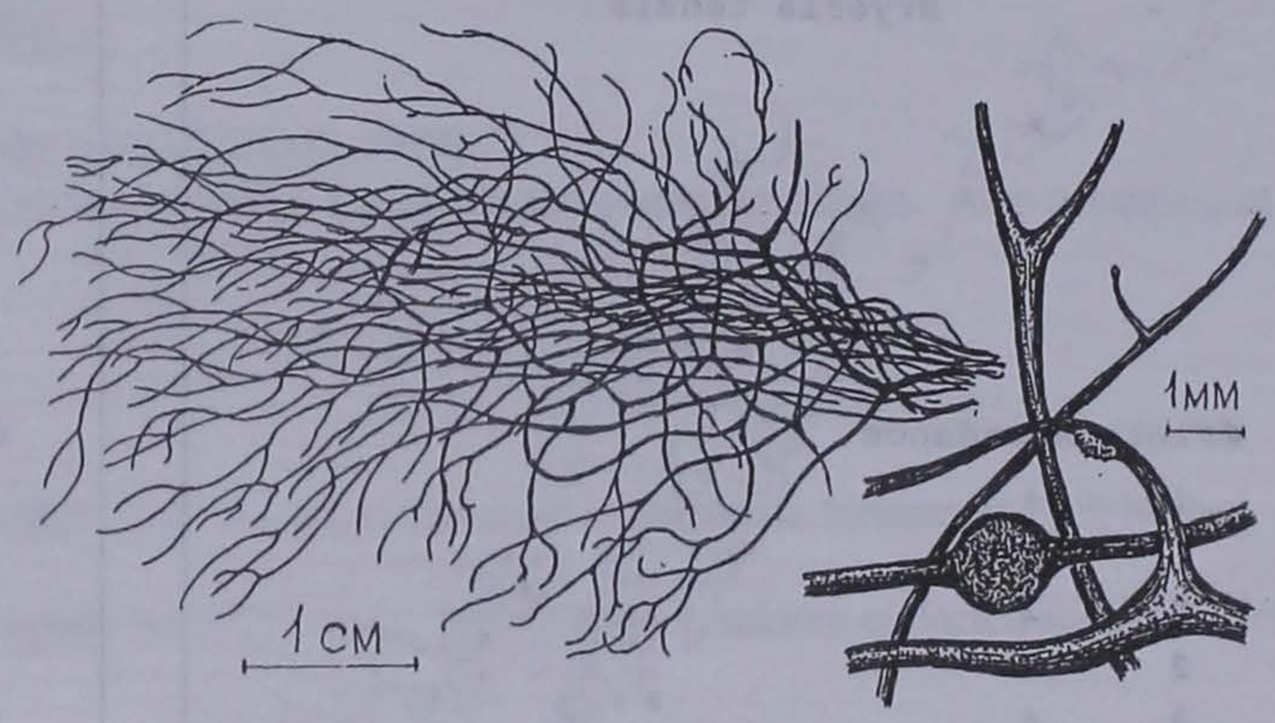
#Plots	Abundance
1	+
1	3

Bryoria fremontii (Tuck.) Brodo & D. Hawksw.
Abundance: 1, rare.
Habitat: single collection from *Alnus sinuata* along a beach on north Kuiu Island.
Abundance in North America/Range: common; western North America south to Baja, California and western Europe, especially northern Finland.
Notes: northern range extension.

Bryoria friabilis Brodo & D. Hawksw.
Abundance: 8, infrequent.
Habitat: corticolous on conifers and deciduous shrubs in all forest types.
Abundance in North America/Range: infrequent North American endemic; west coast-east coast disjunct distribution with a few isolated localities in the interior montane forests.
Notes: northern range extension to Alaska.

Bryoria fuscescens (Gyeln.) Brodo & D. Hawksw.
Sensitivity: 5.5-10.
SO_2 Sensitivity: intermediate, 60/70.
Abundance: 4, infrequent.
Habitat: on *Pinus* and *Picea* in open forests from low elevation to the subalpine.
Abundance in North America/Range: common; circumpolar boreal.

Bryoria glabra (Mot.) Brodo & D. Hawksw.
Abundance: 24, common.
Habitat: corticolous and lignicolous on conifers and deciduous shrubs. In coniferous forests from low elevation to the subalpine.
Abundance in North America/Range: common North American endemic; west coast from northern California to central Alaska , west to the northern Rocky Mountains. Disjunct population in Newfoundland.

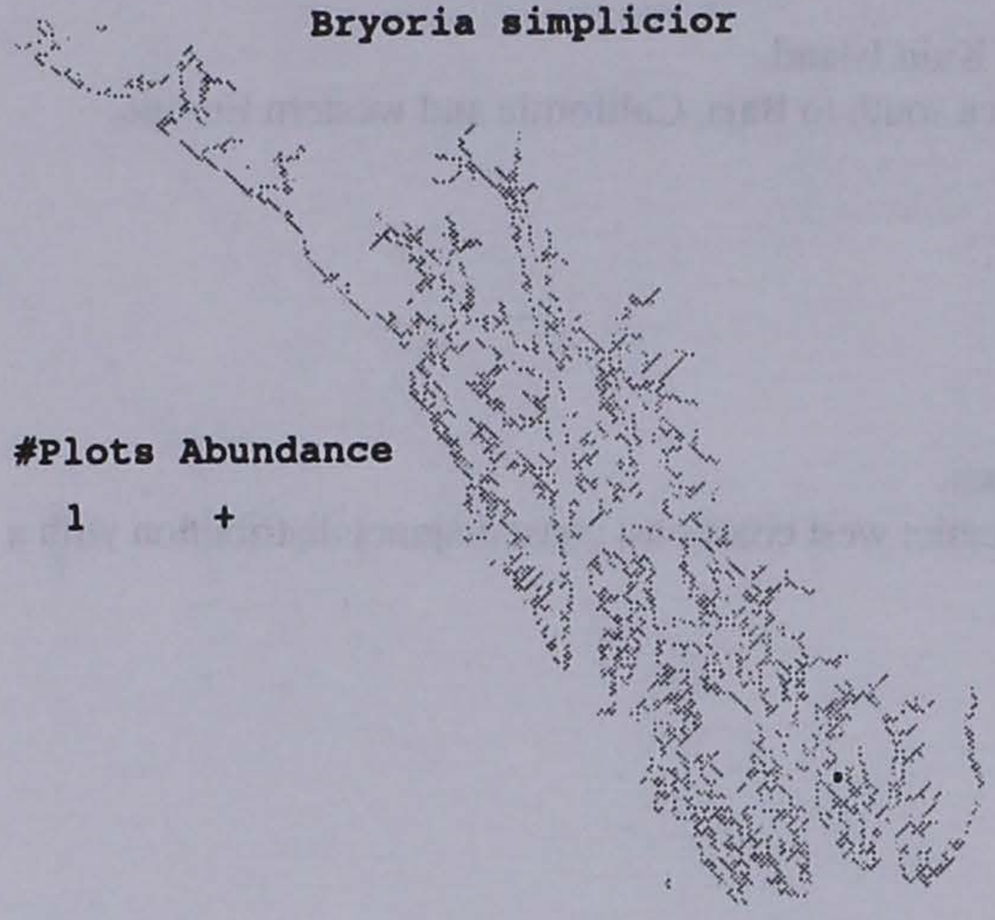


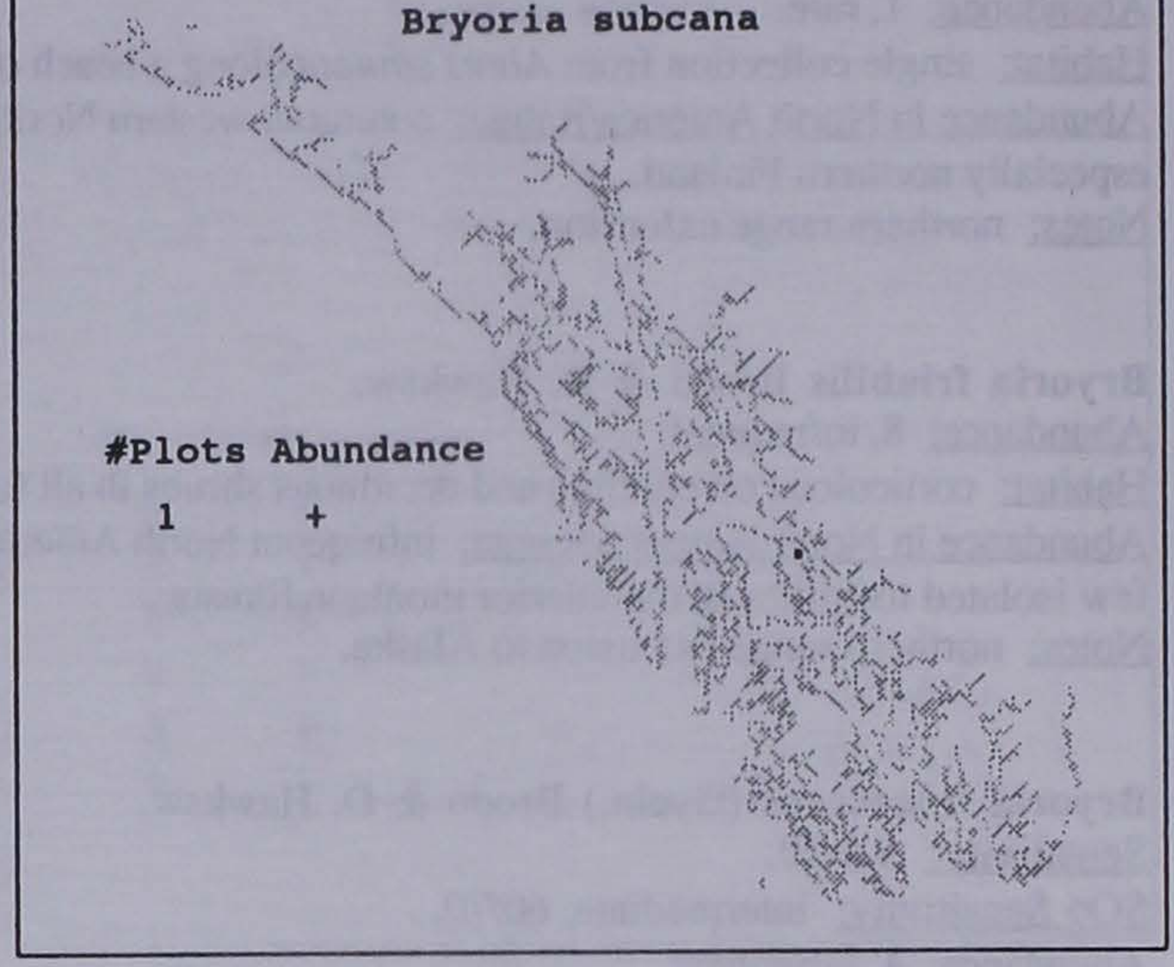
Bryoria glabra

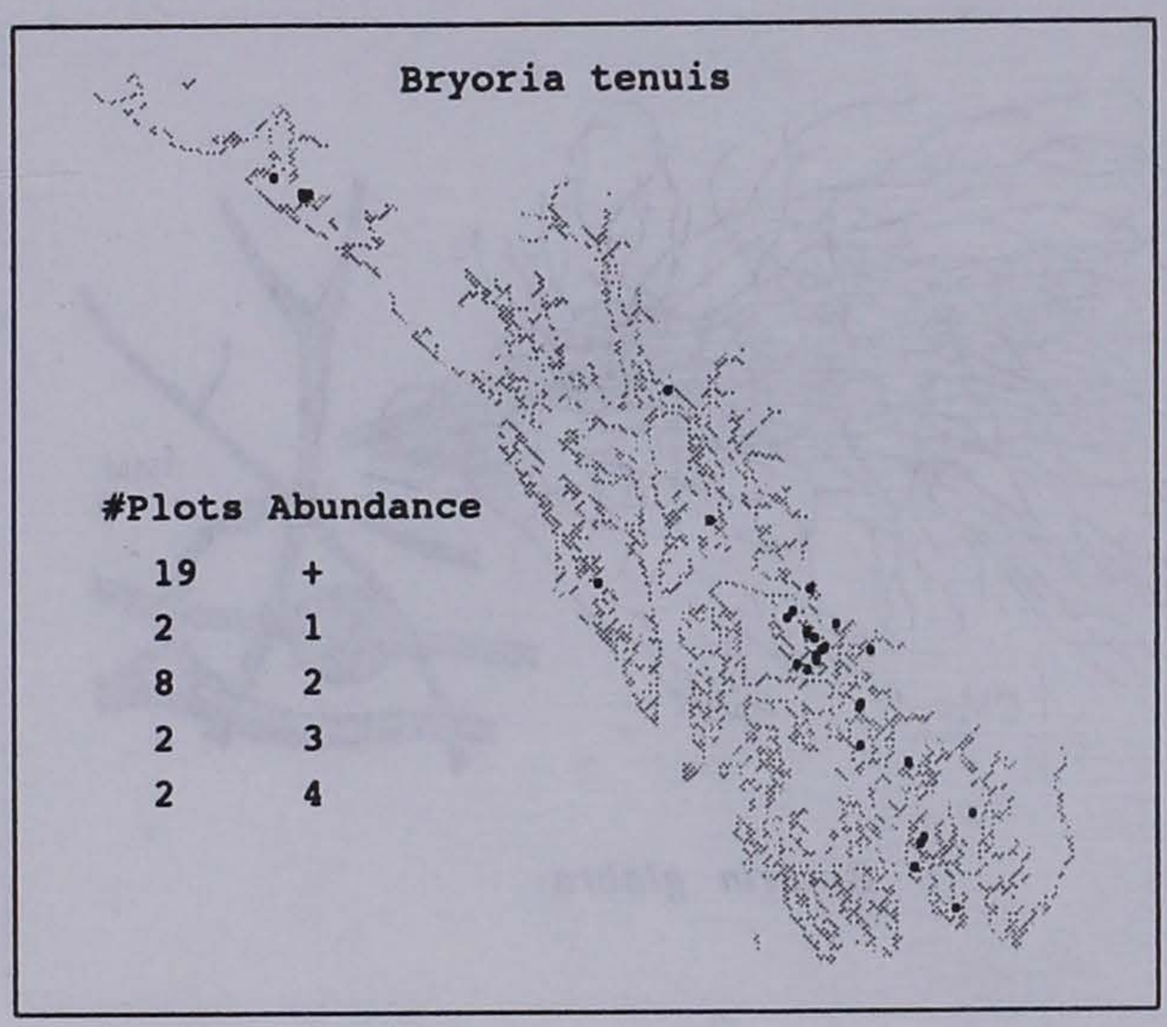
Bryoria lanestris (Ach.) Brodo & D. Hawskw.
Sensitivity: 9.
Abundance: 7, infrequent.
Habitat: corticolous on *Pinus* and *Picea* in open mixed conifer and shore pine forests.
Abundance in North America/Range: common; circumpolar boreal.

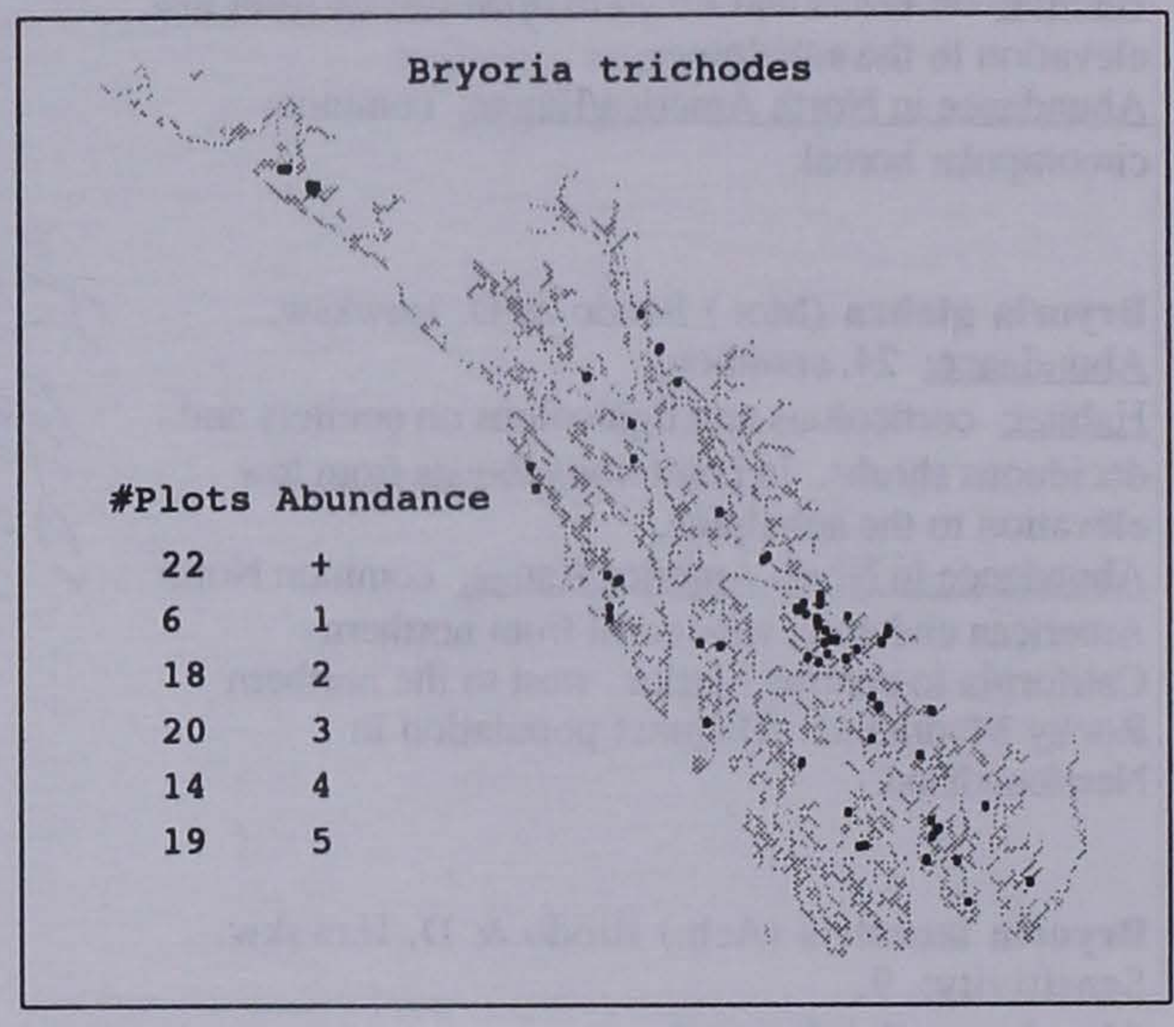
Bryoria nadvornikiana (Gyeln.) Brodo & D. Hawksw.
Sensitivity: 10.
Abundance: 3, infrequent.
Habitat: on bark of conifers; all three collections were from small islands (Dog Island in the far south, Gut Island in the Stikine River flats, and the Myriad Islands west of Chichagof Island).
Abundance in North America/Range: common; circumpolar boreal.

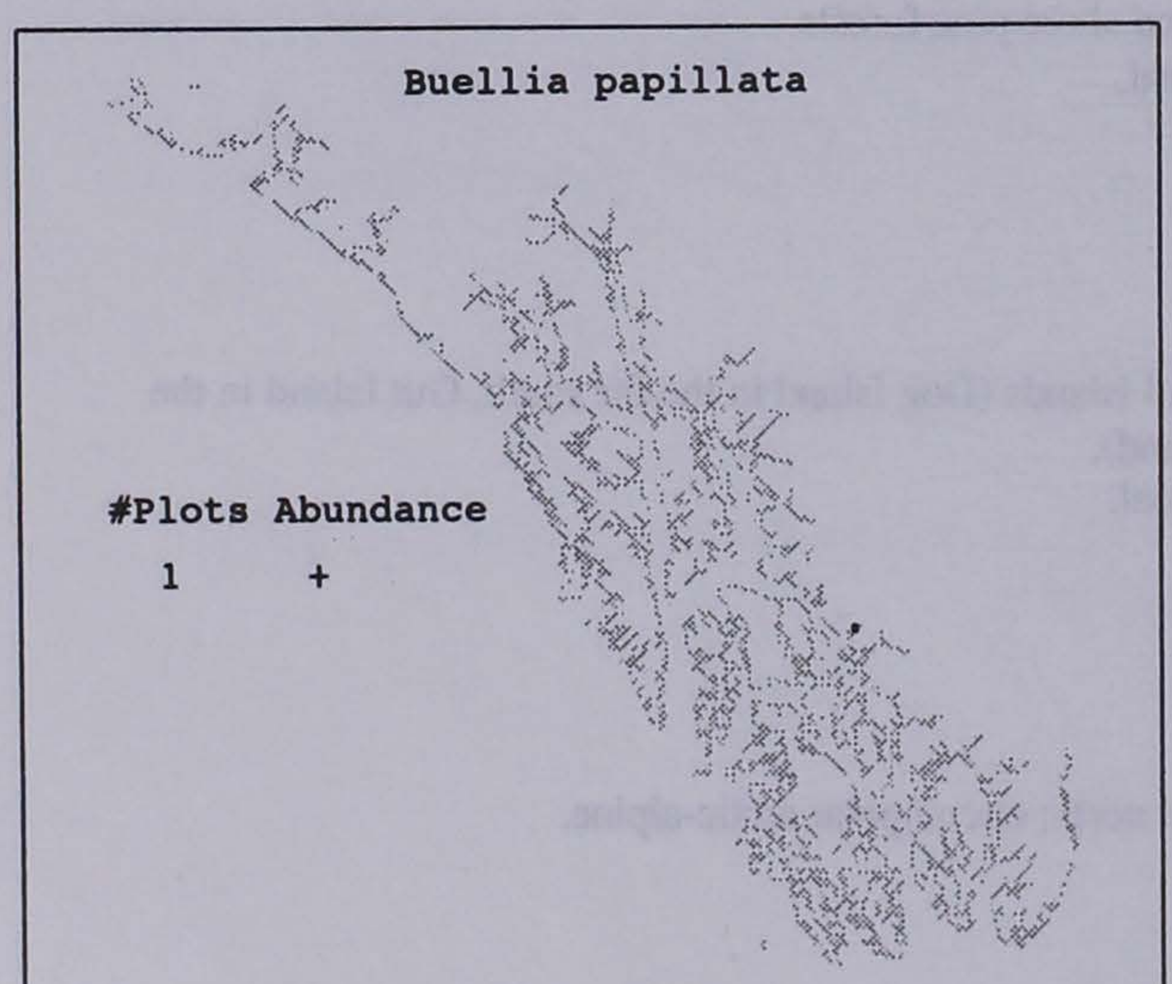
Bryoria nitidula (Th. Fr.) Brodo & D. Hawksw.
Abundance: 3, ?
Habitat: on rock in the mainland alpine.
Abundance in North America/Range: collected commonly further north; circumpolar arctic-alpine.

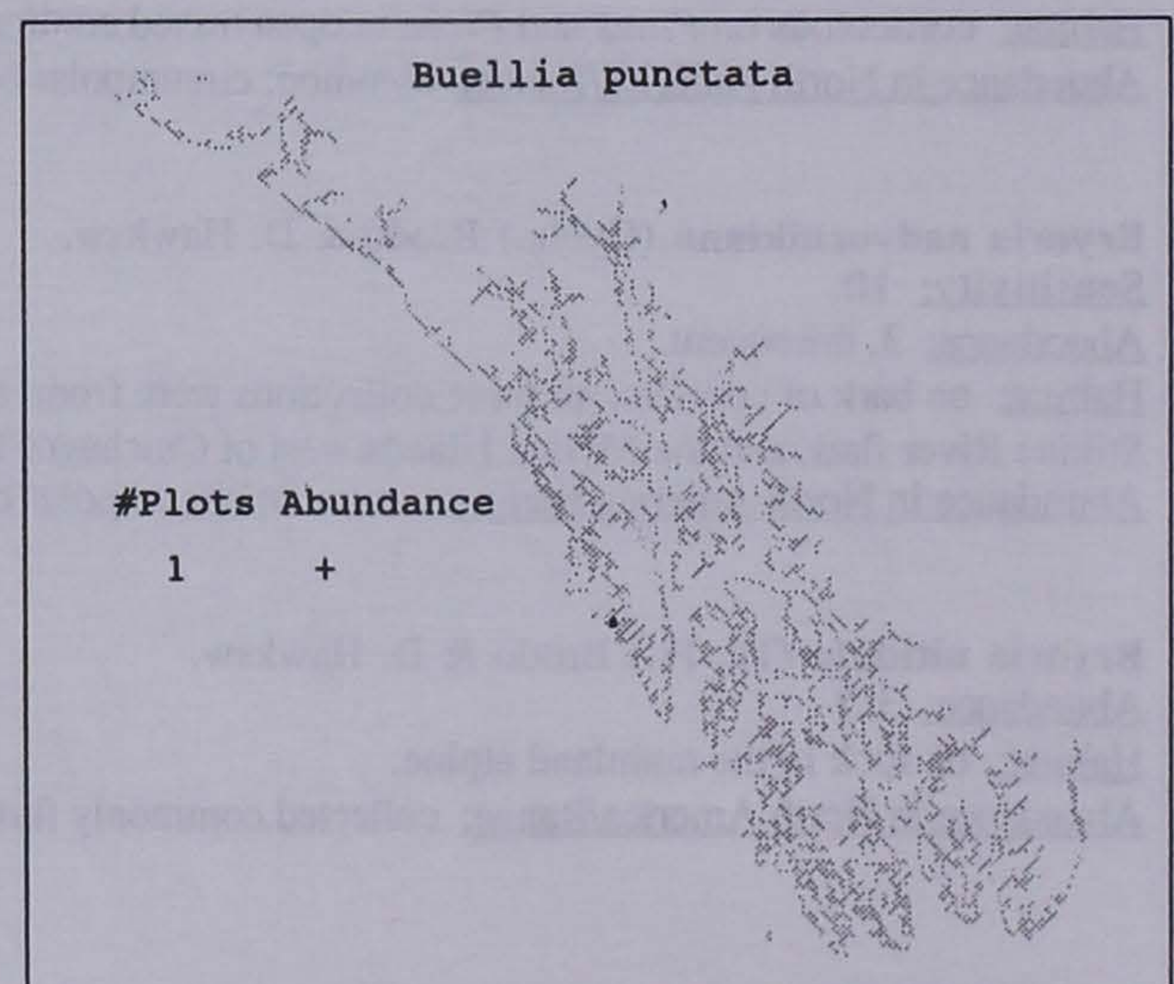

Bryoria simplicior
#Plots Abundance
1 +


Bryoria subcana
#Plots Abundance
1 +


Bryoria tenuis
#Plots Abundance
19 +
2 1
8 2
2 3
2 4


Bryoria trichodes
#Plots Abundance
22 +
6 1
18 2
20 3
14 4
19 5


Buellia papillata
#Plots Abundance
1 +


Buellia punctata
#Plots Abundance
1 +

Bryoria oregana (Tuck. **ex** Willey) Brodo & D. Hawksw.
Abundance: 2, rare.
Habitat: corticolous on *Pinus*; in low elevation open *Pinus contorta* peatlands. Also in the alpine and subalpine in British Columbia (Noble et al., 1987).
Abundance in North America/Range: common North American endemic; western montane and coastal, south to California.
Notes: northern range extension.

Bryoria pseudofuscescens (Gyeln.) Brodo & D. Hawksw.
Abundance: 0, rare.
Habitat: on conifers.
Abundance in North America/Range: common; western North America and Europe.
Notes: reported near Mendenhall Lake, Juneau (Krog, 1968) and further north near Skagway (Thomson, 1984).

Bryoria simplicior (Vainio) Brodo & D. Hawksw.
Abundance: 1, rare.
Habitat: single collection from a snag in a *Pinus contorta* muskeg near Ketchikan.
Abundance in North America/Range: common; circumpolar low arctic and boreal.
Notes: coastal range extension from the boreal forest south.

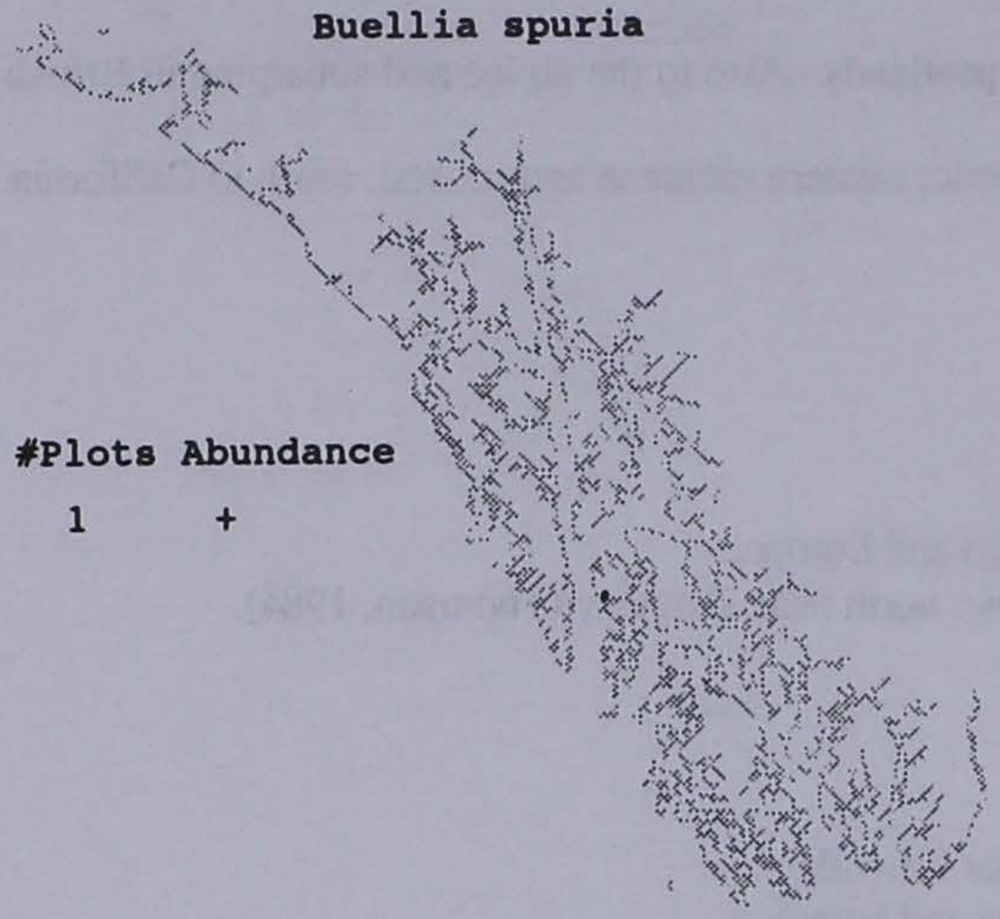
Bryoria subcana (Nyl. **ex** Stizenb.) Brodo & D. Hawksw.
Abundance: 1, rare.
Habitat: on spruce along coastal bays and streams (Brodo & Hawksworth, 1977).
Abundance in North America/Range: rare; distribution is coastal British Columbia and southeast Alaska. Also occurring as a poorly understood species in northern Europe.

Bryoria tenuis (Dahl) Brodo & D. Hawksw.
Abundance: 6, common.
Habitat: widespread; corticolous and lignicolous on conifers and *Alnus*; low elevation to subalpine forests; on rock in the alpine.
Abundance in North America/Range: infrequent; circumpolar boreal, oceanic. Poorly known, seldom collected species which appears to be common in southeastern Alaska.

Bryoria trichodes (Michx.) Brodo & D. Hawksw.
subsp. **americana** (Mot.) Brodo & D. Hawks.
subsp. **trichodes**
Sensitivity: 9.
SO_2 Sensitivity: sensitive, 13-26/26-52.
Abundance: 98, abundant.
Habitat: corticolous on conifers; abundant in all coniferous forests from low elevation to subalpine.
Abundance in North America/Range: common; North American west coast from Alaska to California, east coast from the Great Lakes to Newfoundland, south along Appalachians to North Carolina. Subsp. *americana* is endemic to North America, subsp. *trichodes* is also known from Japan.
Notes: About 85% of the USFS collections were subsp. *americana*. The remainder were subsp. *trichodes* or intergrades between the two.

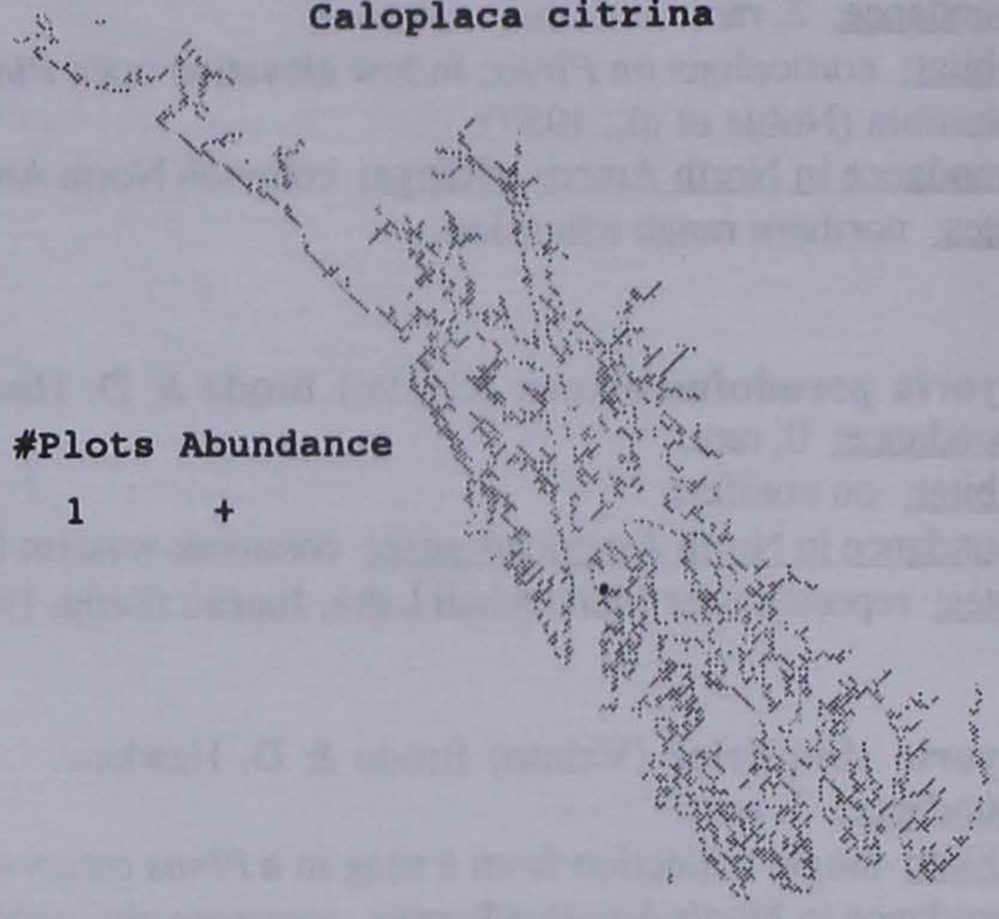
Buellia papillata (Sommerf.) Tuck.
Abundance: 1, ?
Habitat: on rock in the mainland alpine.
Abundance in North America/Range: common North American species. Also known from Europe.

Buellia spuria



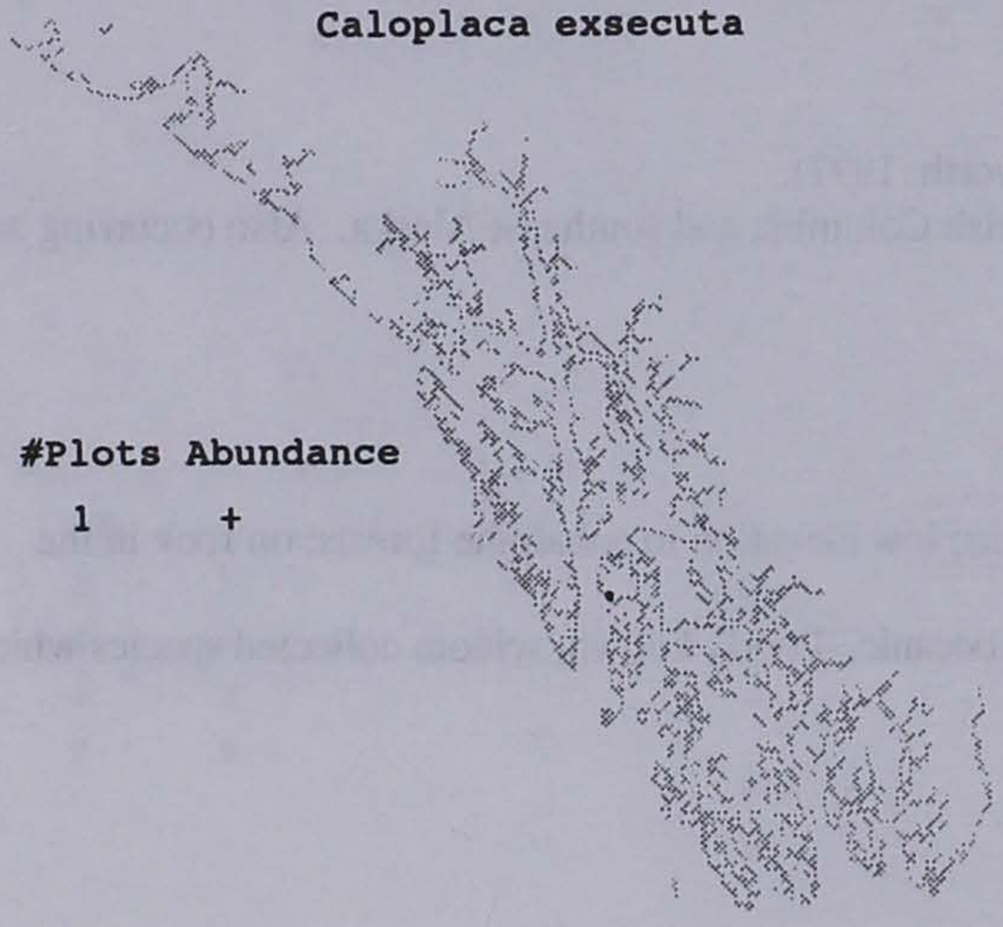
#Plots	Abundance
1	+

Caloplaca citrina



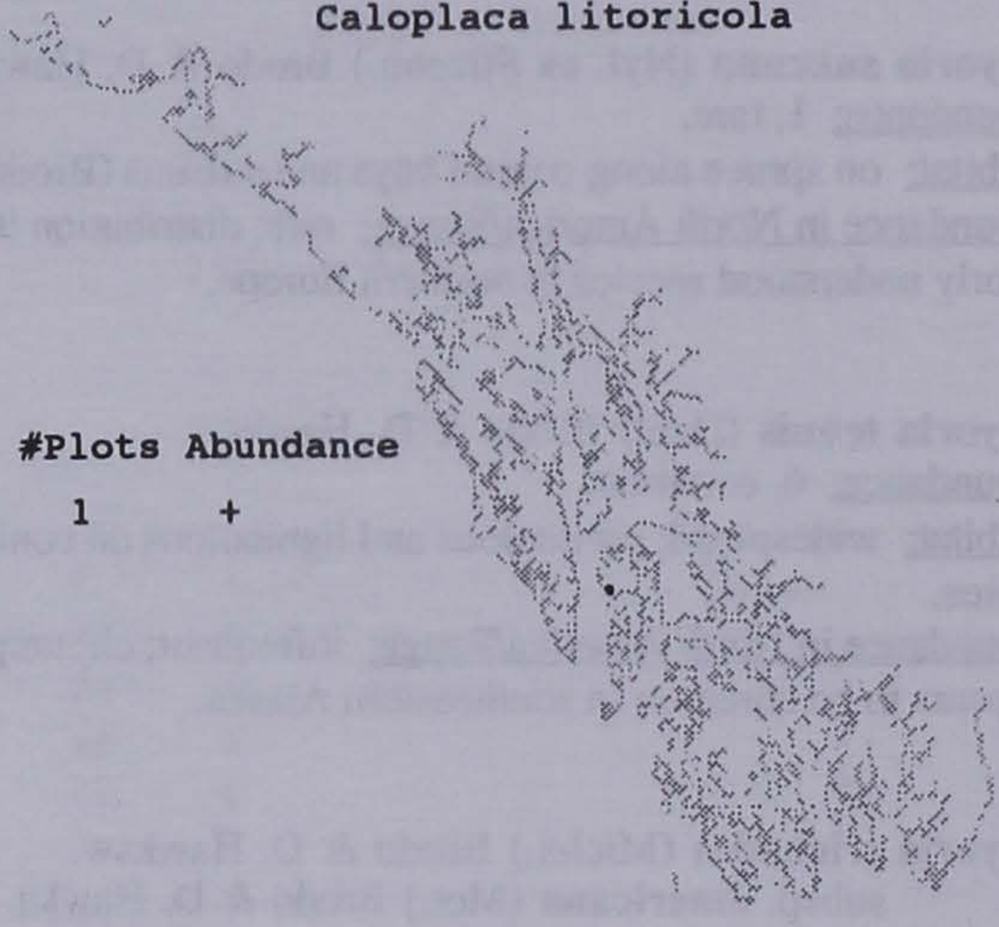
#Plots	Abundance
1	+

Caloplaca exsecuta



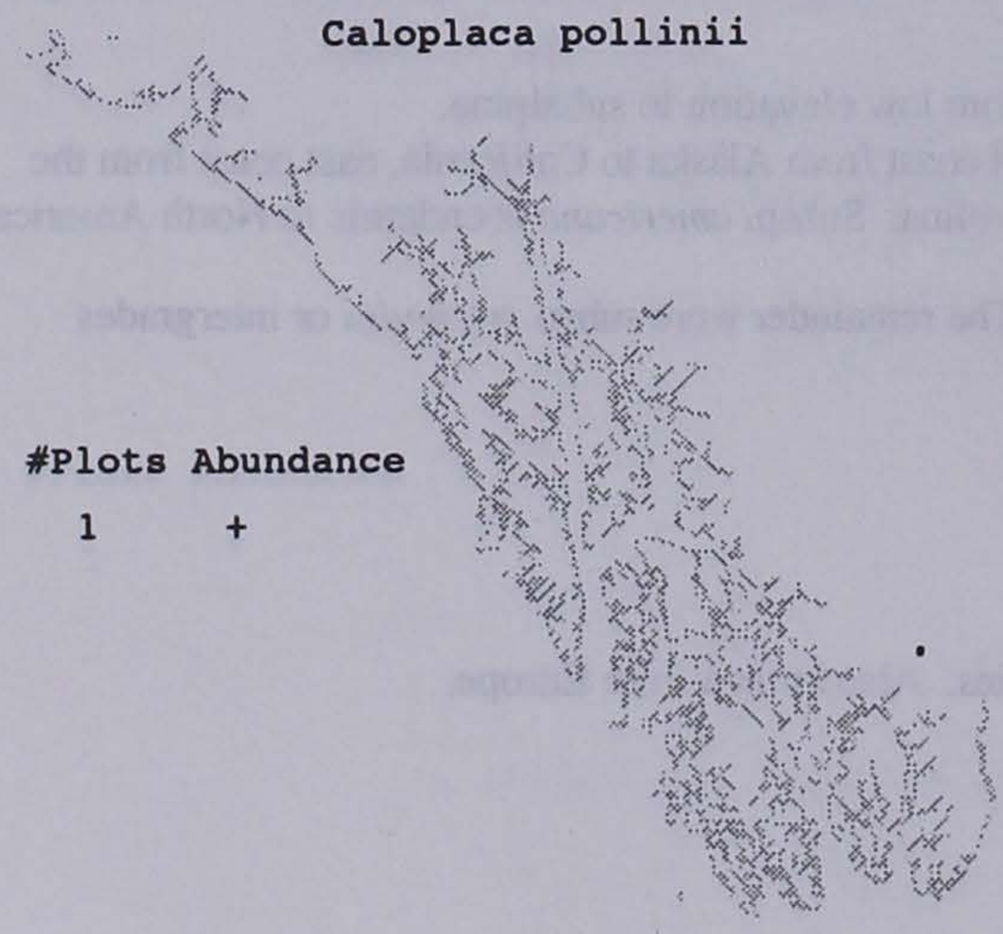
#Plots	Abundance
1	+

Caloplaca litoricola



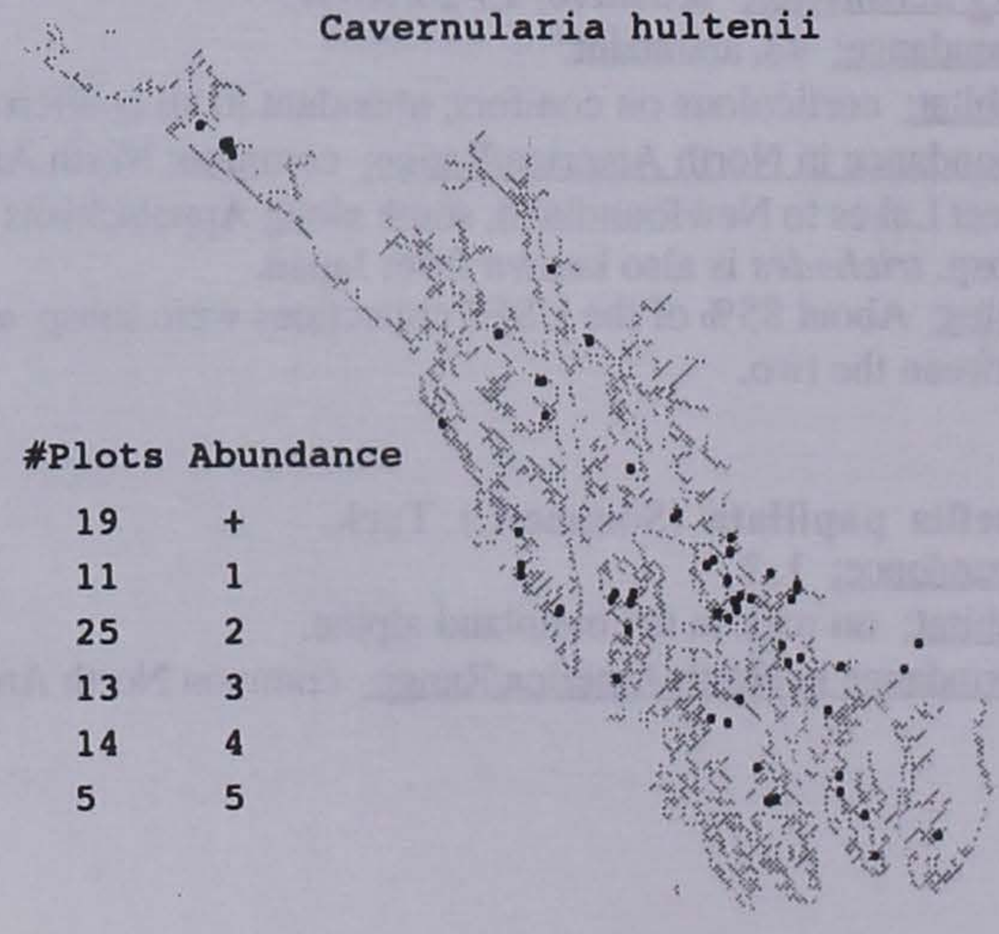
#Plots	Abundance
1	+

Caloplaca pollinii



#Plots	Abundance
1	+

Cavernularia hultenii



#Plots	Abundance
19	+
11	1
25	2
13	3
14	4
5	5

Buellia punctata (Hoffm.) Massal.
Sensitivity: 1.1-5.6
SO_2 Sensitivity: tolerant, 90-110/125.
Abundance: 1, ?
Habitat: on bark of *Alnus* along the beach.
Abundance in North America/Range: common in North America and Europe.

Buellia spuria (Schaerer) Anzi
Abundance: 1, ?
Habitat: coastal on shore rocks.
Abundance in North America/Range: common. Circumpolar, arctic to temperate.

Calicium viride Pers.
Sensitivity: The *Calicium* species most resistant to SO2 air pollution (Purvis, et al., 1992).
Abundance: 0, ?
Habitat: on trunks of conifers and dead limbs of trees.
Abundance in North America/Range: throughout North (temperate and boreal to lower arctic) and South America, Siberia and Europe.
Notes: reported from Zarembo Island (Herre, 1919).

Caloplaca citrina (Hoffm.) Th. Fr.
Abundance: 4, ?
Habitat: coastal on shore rocks.
Abundance in North America/Range: common; circumpolar in temperate regions.

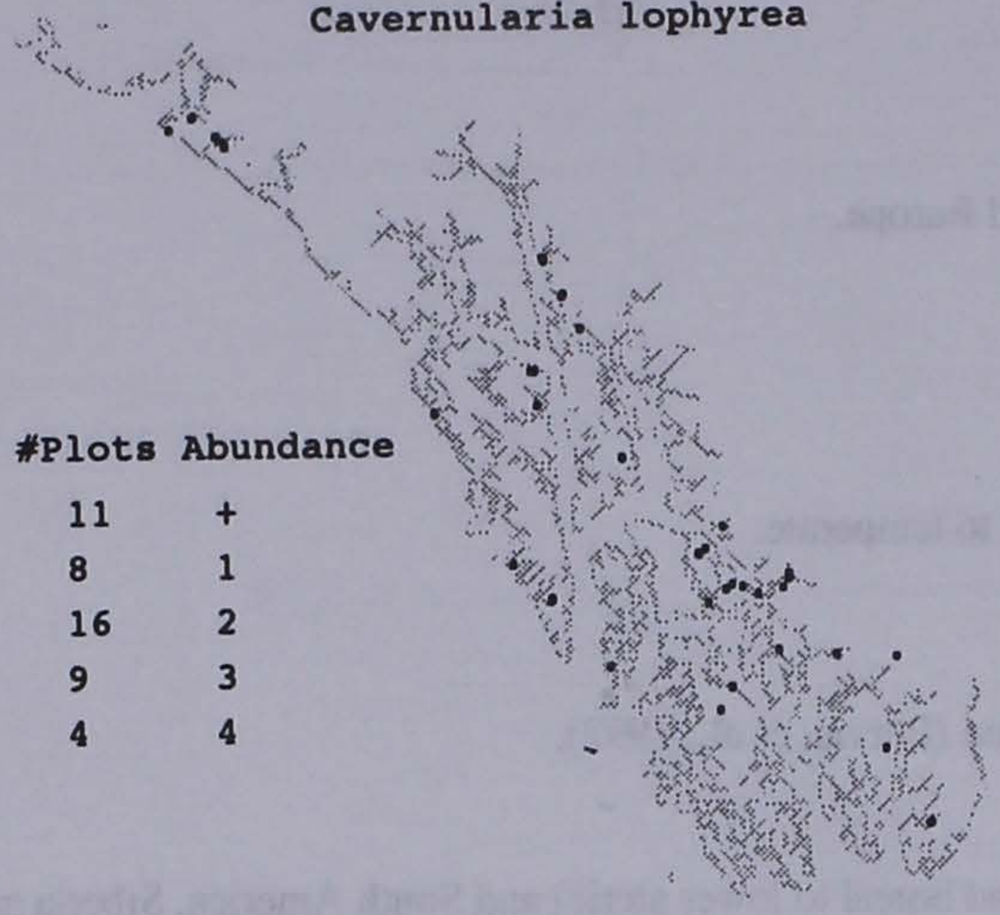
Caloplaca exsecuta (Nyl.) Dalla Torre & Sarnth.
Abundance: 1, ?
Habitat: coastal on shore rocks.
Abundance in North America/Range: rare; arctic-alpine, frequent outside North America.

Caloplaca ferruginea (Huds.) Th. Fr.
Sensitivity: in Britain, confined to unpolluted areas.
Abundance: 0, ?
Habitat: on bark or wood of conifers and deciduous woody plants.
Abundance in North America/Range: sporadically reported in western North America; Europe, North America, Hawaii, South Africa, Australia.
Notes: reported from the Mendenhall Valley near Juneau (McCullough, 1965).

Caloplaca litoricola Brodo
Abundance: 1, ?
Habitat: coastal on shore rocks.
Abundance in North America/Range: common Pacific Northwest North American endemic; from Washington to southeast Alaska.
Notes: first Alaskan record.

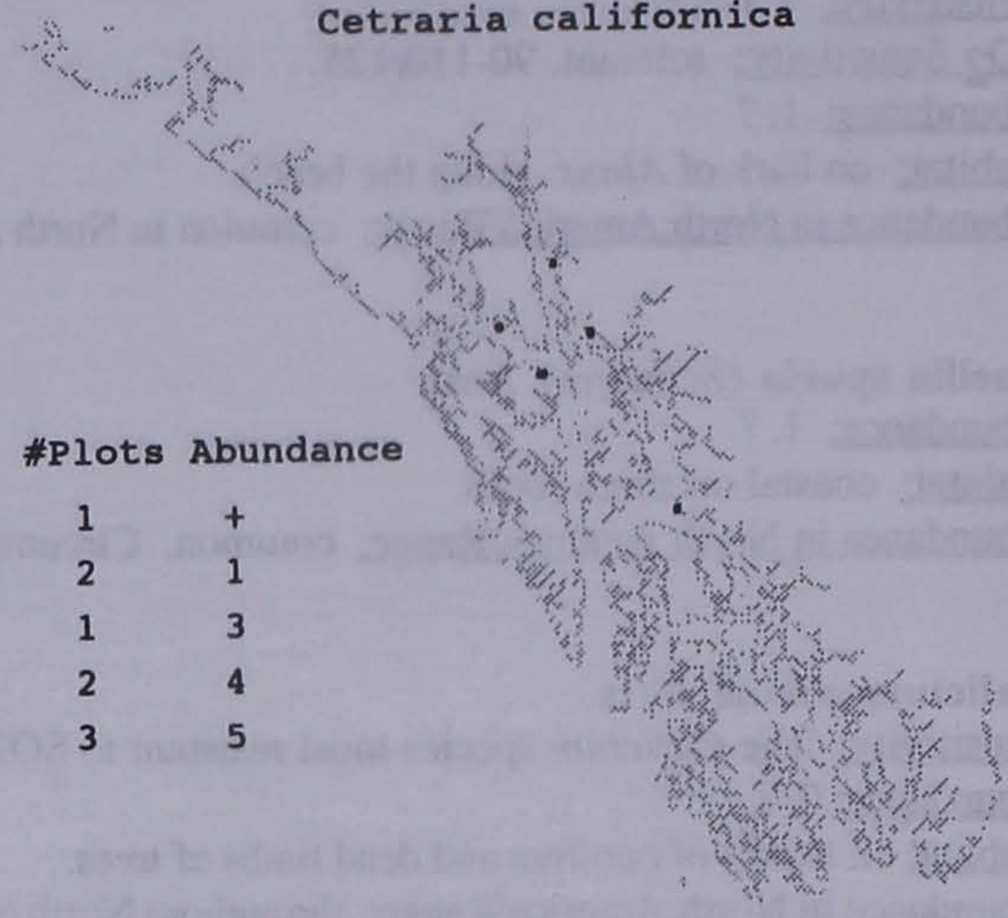
Caloplaca pollinii (Massal.) Jatta
Abundance: 1, ?
Habitat: on bark of *Populus*.
Abundance in North America/Range: infrequent. Known from central and northern Europe and North America (Washington, Oregon, California, and eastern states).
Notes: first Alaskan record.

Cavernularia lophyrea



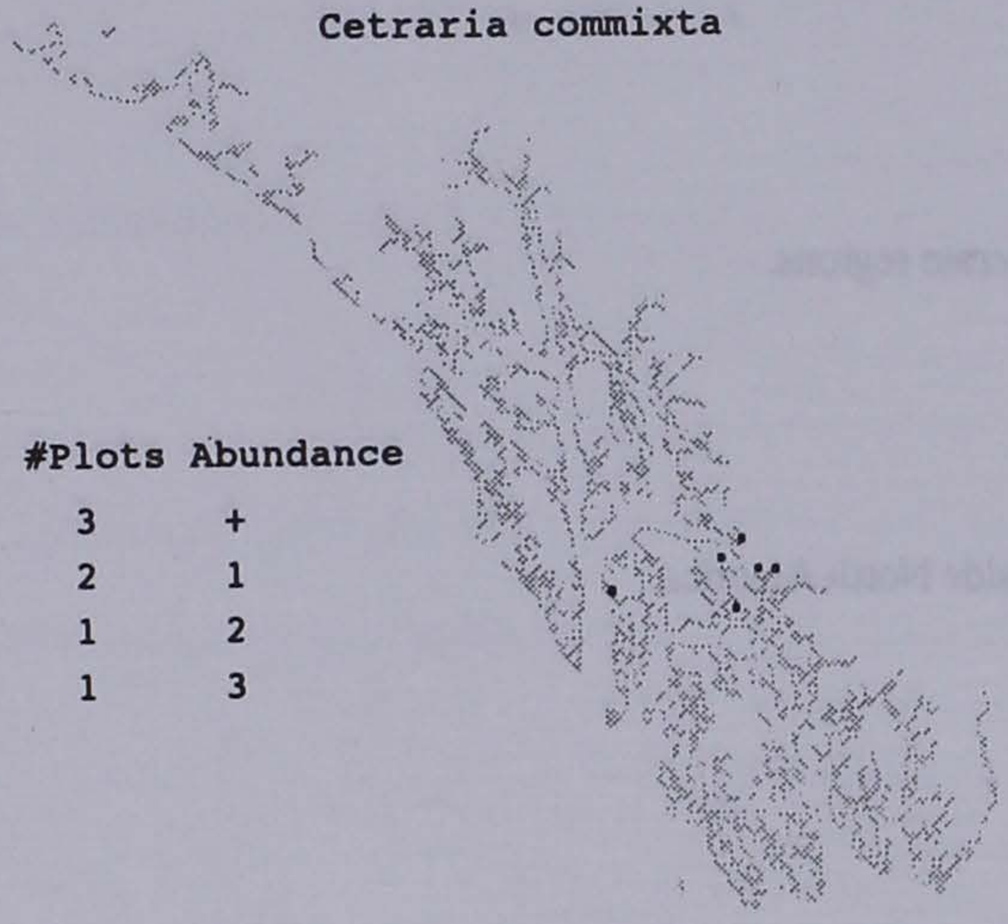
#Plots	Abundance
11	+
8	1
16	2
9	3
4	4

Cetraria californica



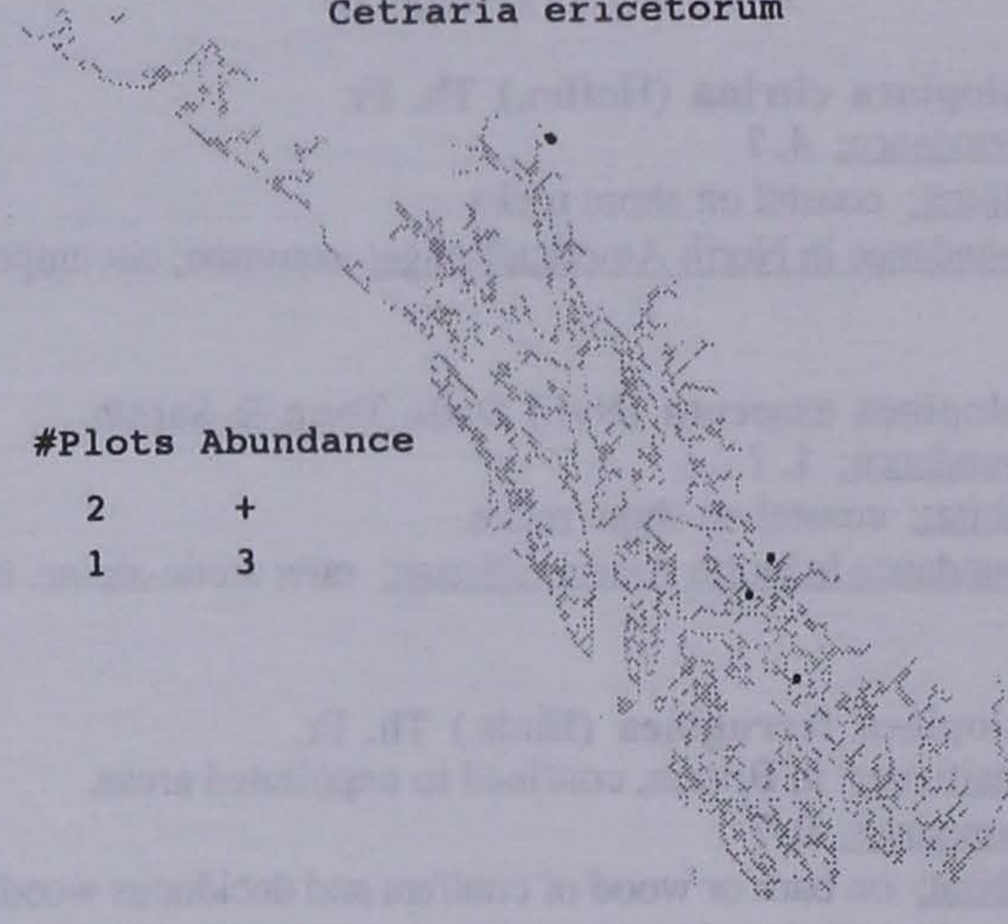
#Plots	Abundance
1	+
2	1
1	3
2	4
3	5

Cetraria commixta



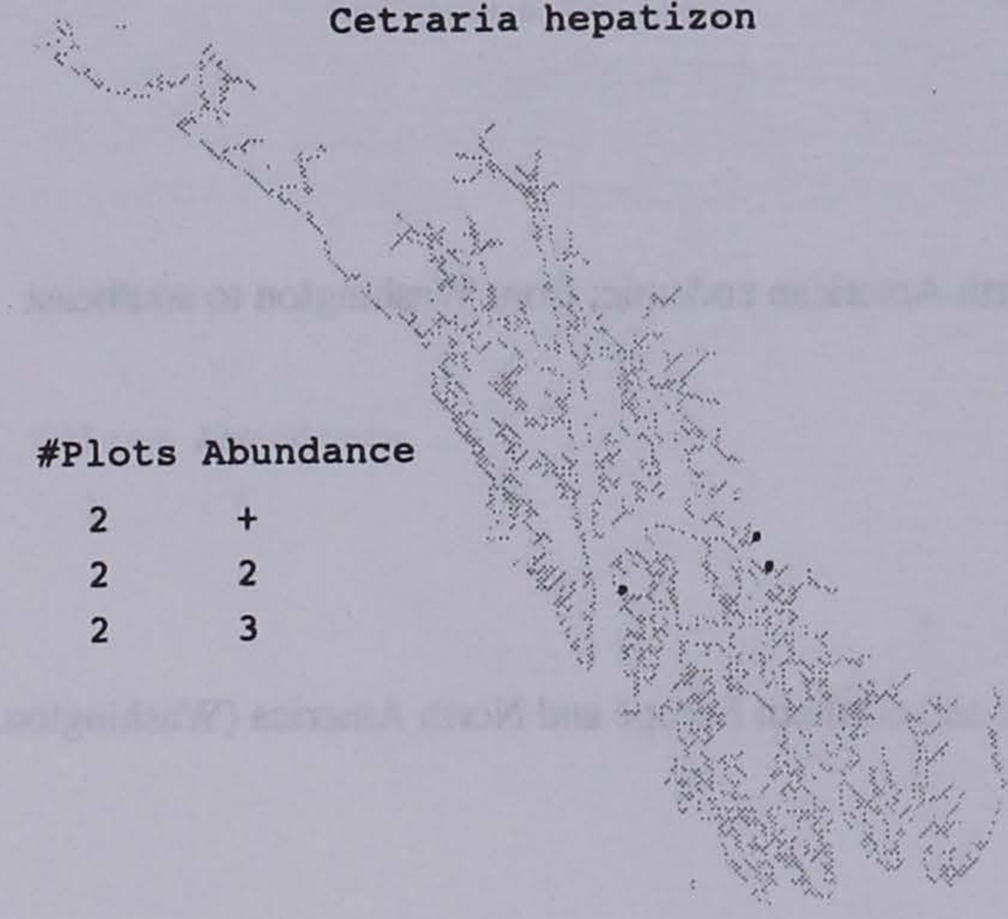
#Plots	Abundance
3	+
2	1
1	2
1	3

Cetraria ericetorum



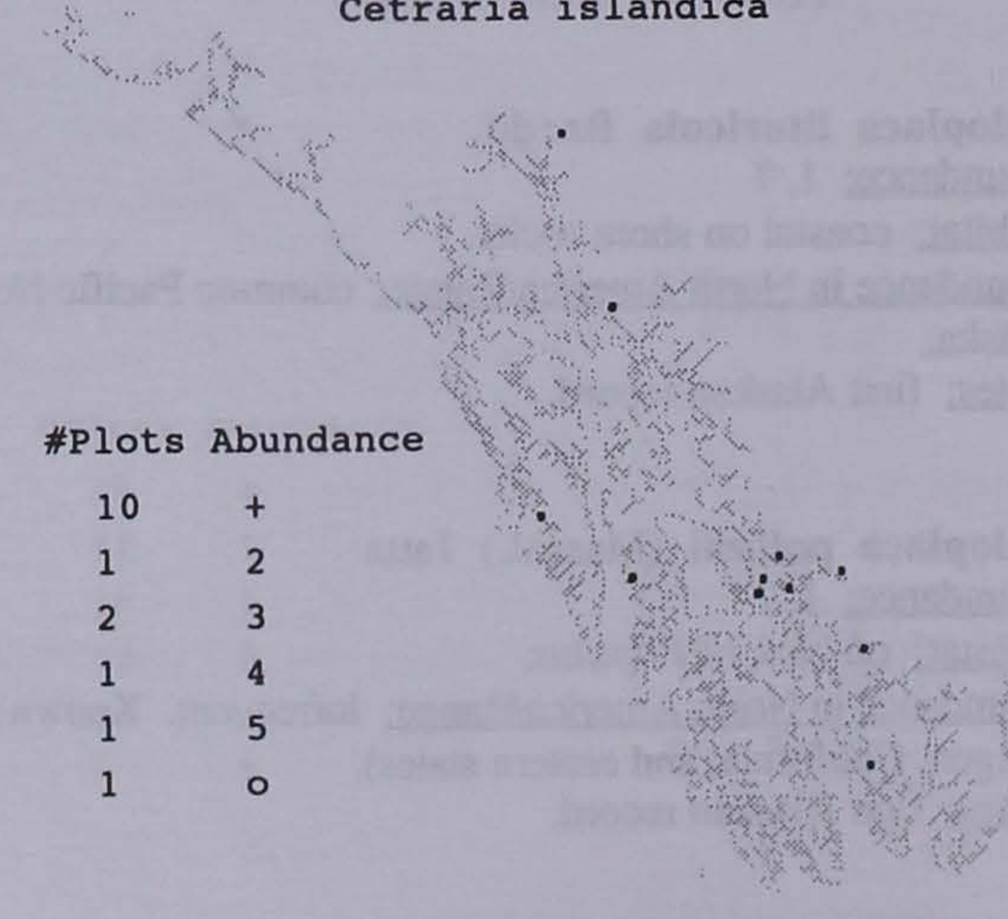
#Plots	Abundance
2	+
1	3

Cetraria hepatizon



#Plots	Abundance
2	+
2	2
2	3

Cetraria islandica



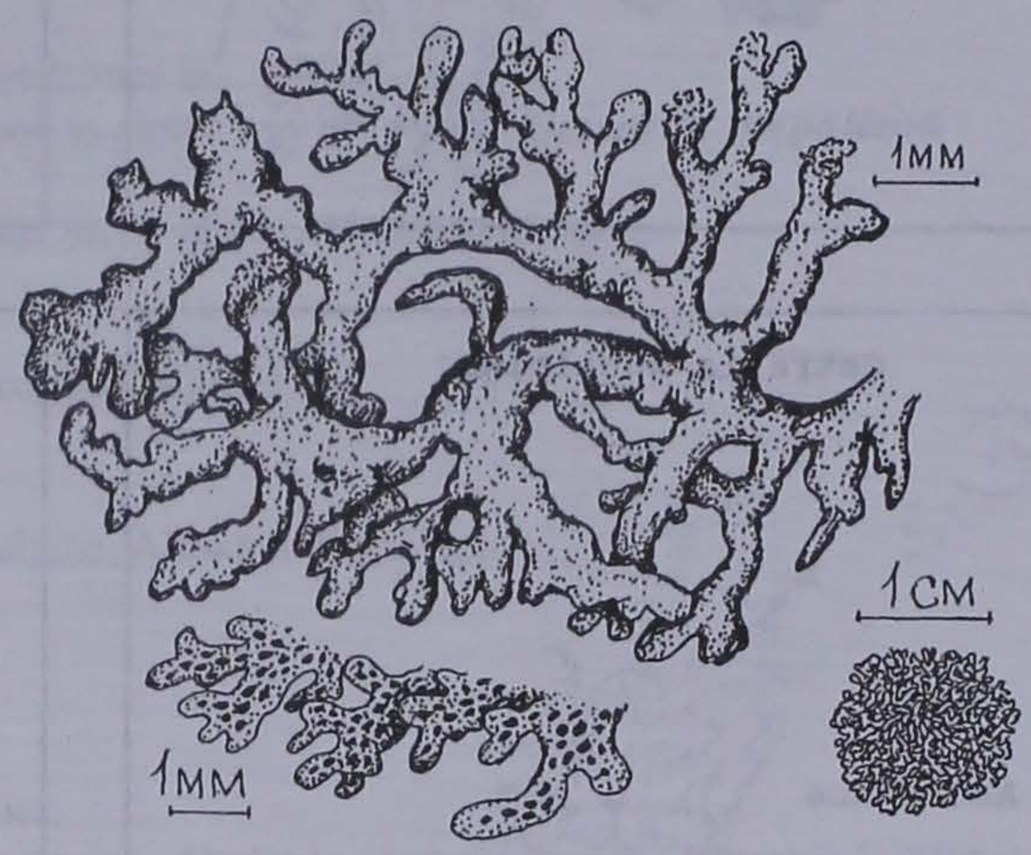
#Plots	Abundance
10	+
1	2
2	3
1	4
1	5
1	o

Candelariella aurella (Hoffm.) Zahlbr.
Abundance: 0, ?
Habitat: on sandstone.
Abundance in North America/Range: widespread in North America and Europe.
Notes: previously reported from Heceta Island (Herre, 1919). This lichen can also grow on old wood, concrete, mortar and asbestos-cement. In Britain it is abundant in urban areas, rare and localized elsewhere (Purvis et al., 1992).

Candelariella canadensis Magn.
Abundance: 0, ?
Habitat: on humus or soil.
Abundance in North America/Range: from Alaska, trans-Canada to Greenland, south to Colorado and New Mexico.
Notes: previously reported from the Mendenhall Valley near Juneau (McCullough, 1965).

Cavernularia hultenii Degel.
Abundance: 87, abundant.
Habitat: on fine branches of conifers and deciduous shrubs; from low elevation to subalpine forests.
Abundance in North America/Range: infrequent; western North America-eastern North America- western Eurasia.

Cavernularia lophyrea (Ach.) Degel
Abundance: 48, abundant.
Habitat: on fine branches of conifers, rarely on deciduous shrubs; in low to mid elevation forests.
Abundance in North America/Range: frequent; western North America, Alaska to California.



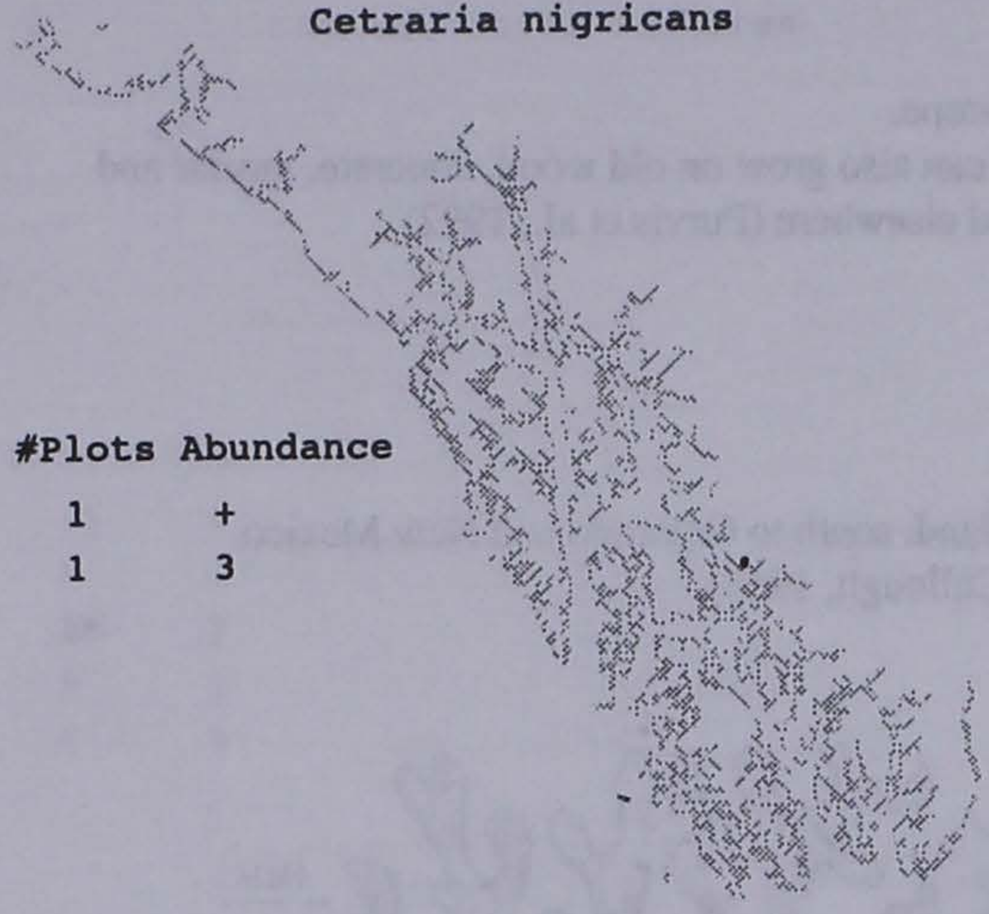
Cavernularia hultenii

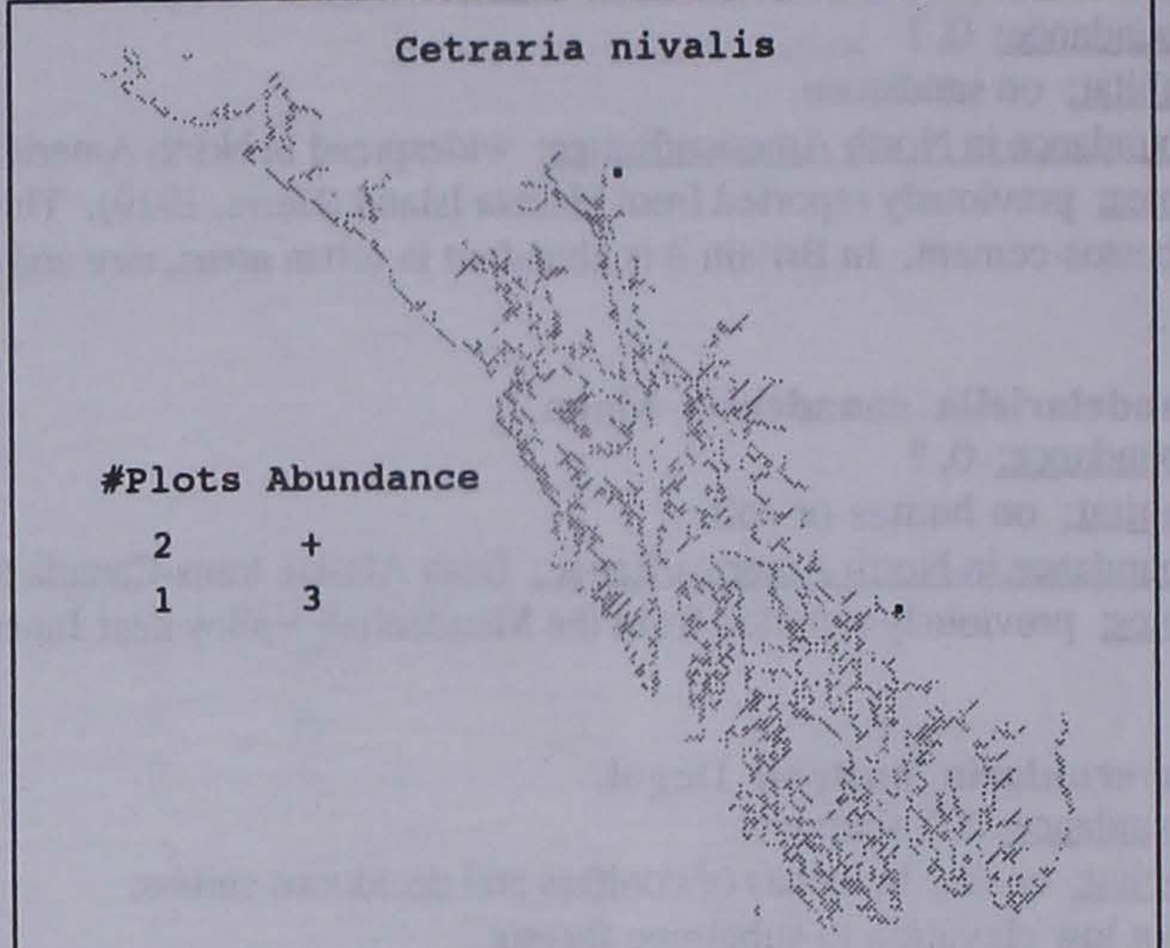
Cetraria californica Tuck.
Abundance: 9, infrequent.
Habitat: over *Pinus contorta*, in open coast forests at lower elevations, especially hypermaritime localities.
Abundance in North America/Range: common Pacific Northwest North American endemic, from California to Alaska becoming rare in British Columbia.
Notes: northern range extension.

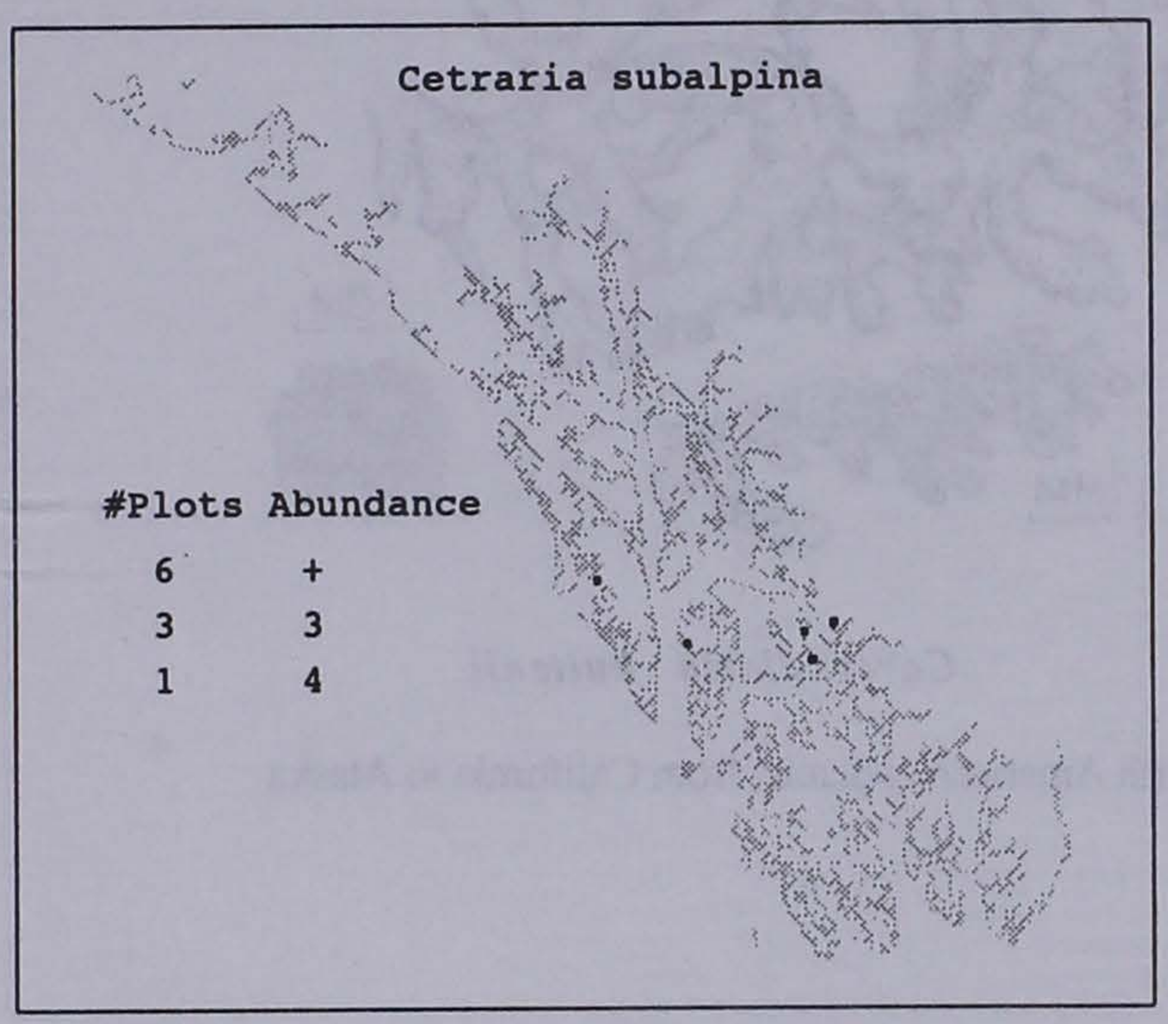
Cetraria commixta (Nyl.) Th. Fr.
Abundance: 7, common.
Habitat: over rock in coastal localities, alpine and subalpine.
Abundance in North America/Range: common; circumpolar arctic-alpine, Alaska to Colorado but rare on the west coast south from British Columbia.

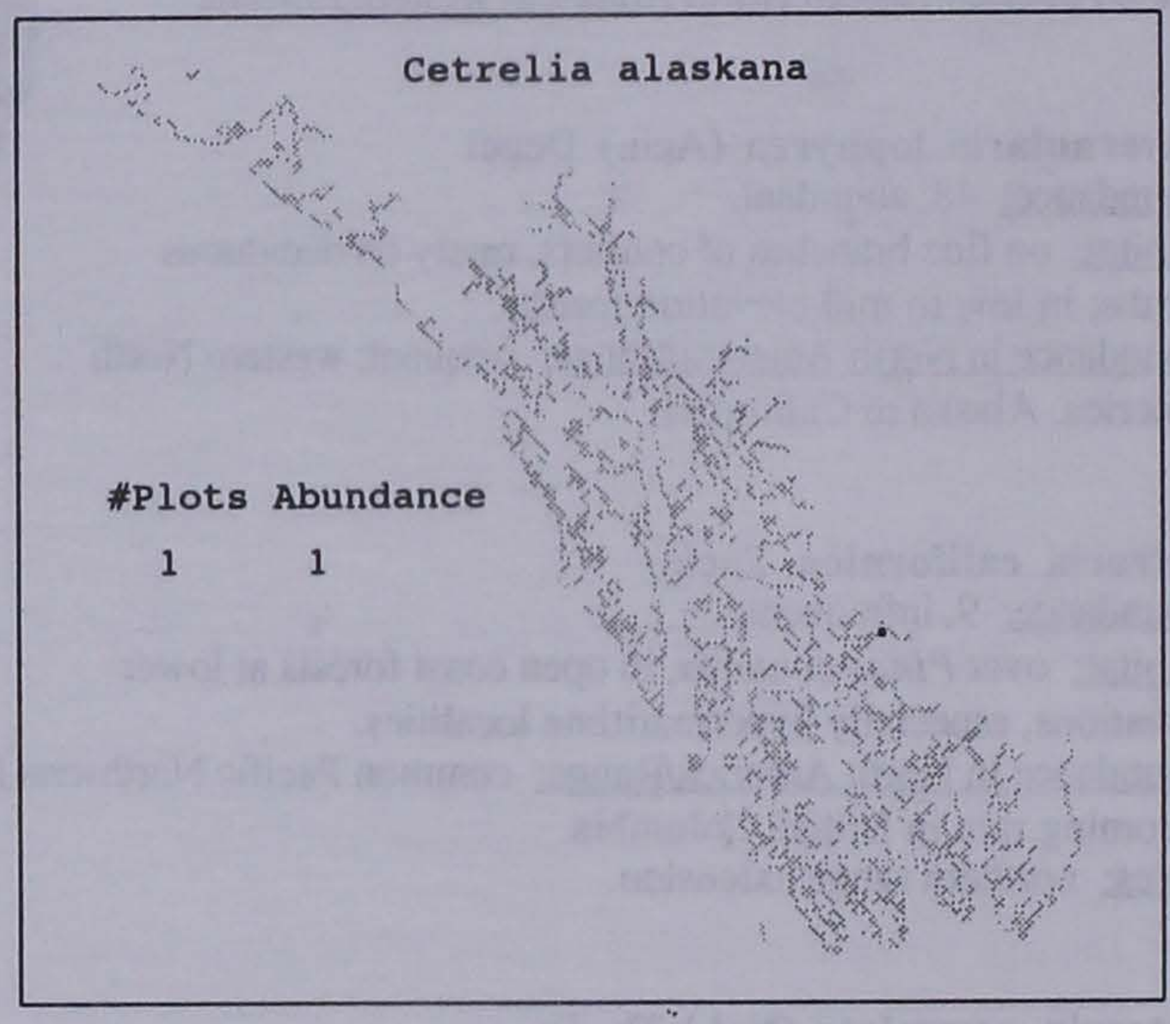
Cetraria cucullata (Bell.) Ach.
Abundance: 3, infrequent?
Habitat: over ground in alpine and subalpine sites.
Abundance in North America/Range: common; circumpolar arctic-alpine, Alaska to New Mexico.

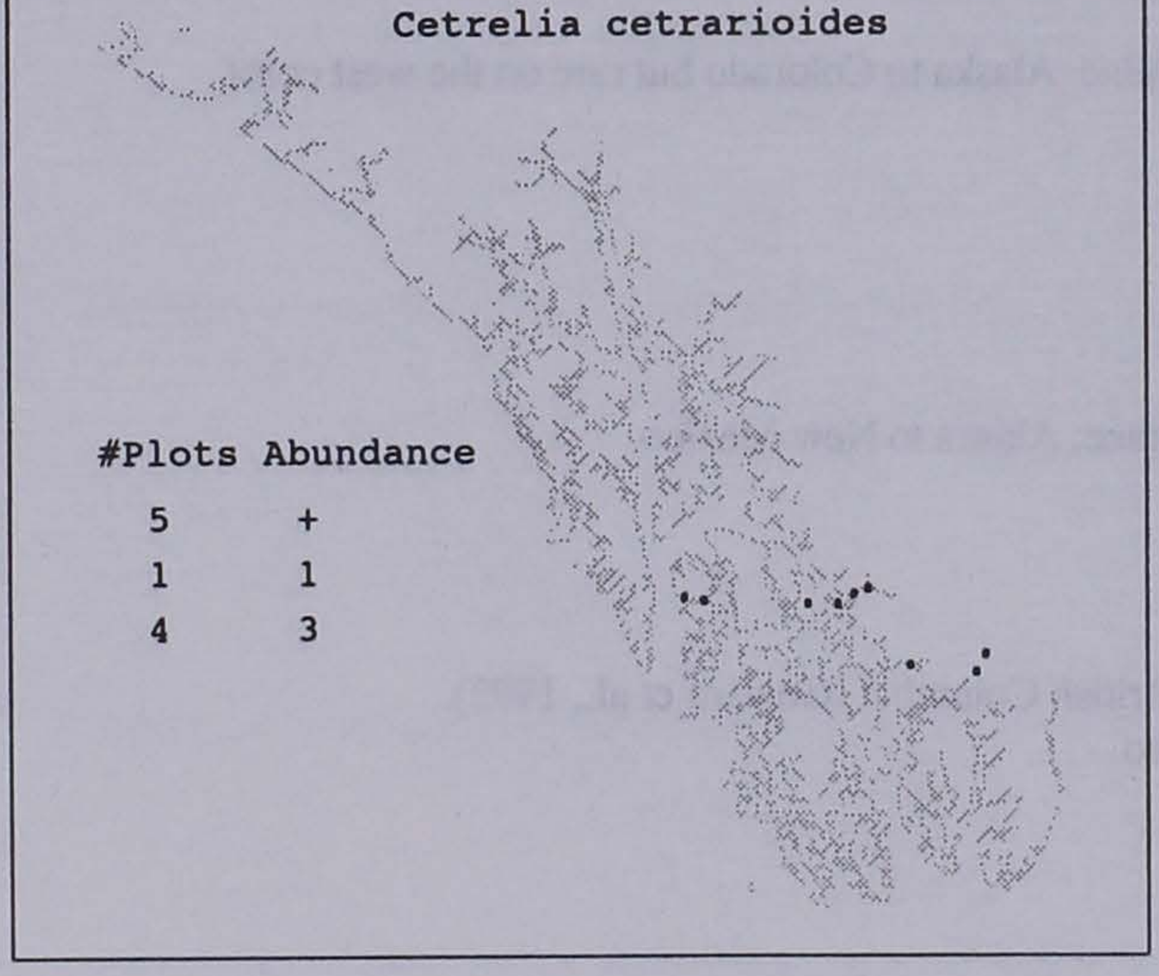
Cetraria delisei (Bory ex Schaerer) Nyl.
Abundance: 0, rare.
Habitat: over sheltered ground in alpine and subalpine localities in British Columbia (Goward et al., 1992).
Abundance in North America/Range: common; circumpolar, Alaska to northern British Columbia, where it is also rare.
Notes: reported from Mt. Roberts near Juneau (Krog, 1968).

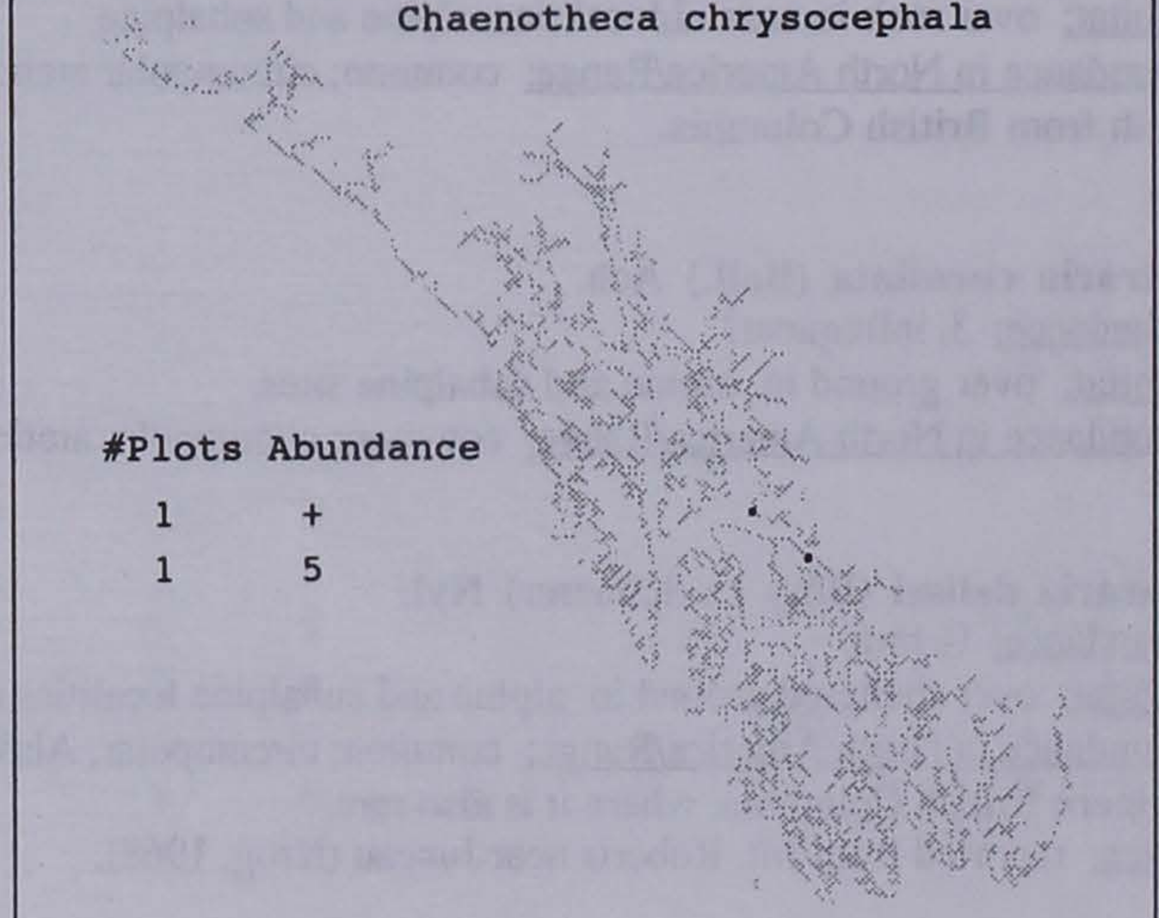

Cetraria nigricans
#Plots Abundance
1 +
1 3


Cetraria nivalis
#Plots Abundance
2 +
1 3


Cetraria subalpina
#Plots Abundance
6 +
3 3
1 4


Cetrelia alaskana
#Plots Abundance
1 1

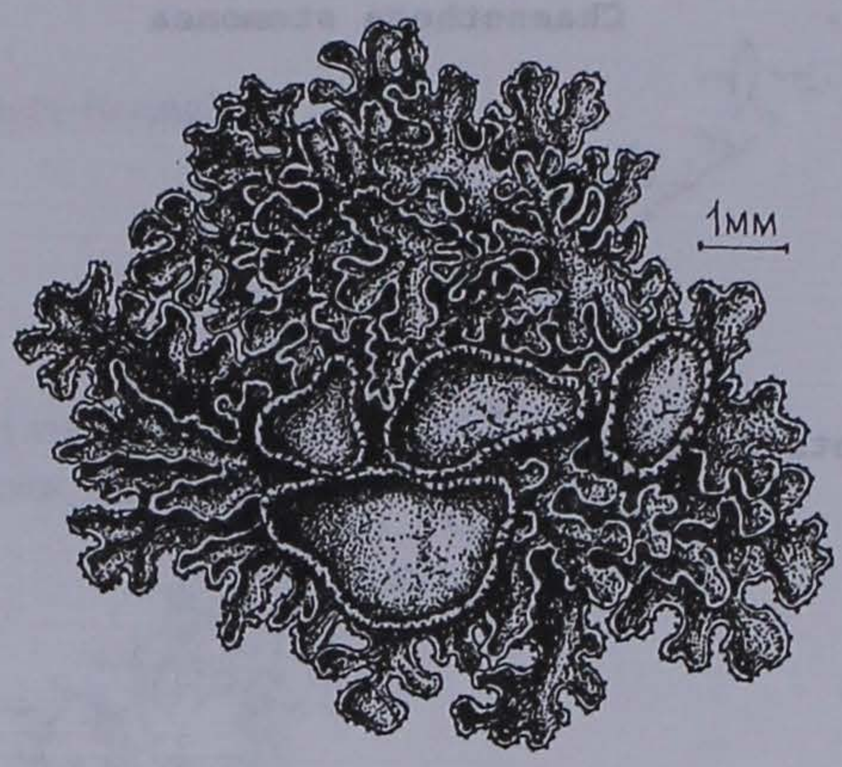

Cetrelia cetrarioides
#Plots Abundance
5 +
1 1
4 3


Chaenotheca chrysocephala
#Plots Abundance
1 +
1 5

Cetraria ericetorum Opiz
Abundance: 4, infrequent?
Habitat: over ground (humus) in alpine and subalpine sites.
Abundance in North America/Range: common; circumpolar arctic-alpine, Alaska to Oregon.

Cetraria hepatizon (Ach.) Vainio
Abundance: 6, common.
Habitat: on rock in alpine sites.
Abundance in North America/Range: common; circumpolar arctic-alpine, Alaska to Arizona.

Cetraria islandica (L.) Ach.
Abundance: 12, common.
Habitat: in soil humus with other lichens and mosses, sometimes in rock crevices. In low elevation peatlands but more common in alpine and subalpine localities.
Abundance in North America/Range: common; circumpolar arctic-alpine, Alaska to Mexico.



Cetraria hepatizon

Cetraria islandica (L.) Ach. subsp. **crispiformis** (Räsänen) Kärnef.
Abundance: 1, infrequent?
Habitat: over ground in open subalpine and alpine sites.
Abundance in North America/Range: circumpolar arctic-alpine, Alaska to Washington.

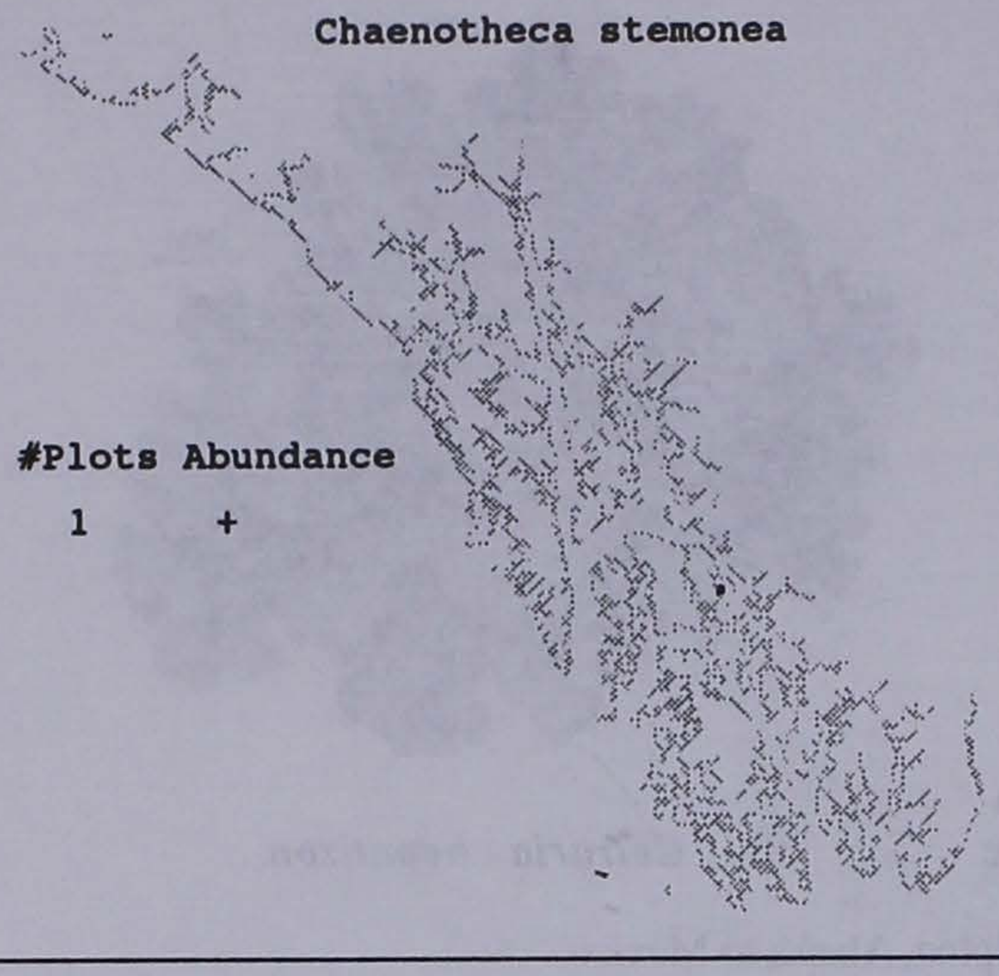
Cetraria laevigata Rass.
Abundance: 1, infrequent?
Habitat: over ground in open alpine and subalpine localities.
Abundance in North America/Range: common; amphi-Beringian, Alaska to northern British Columbia (where it is rare).
Notes: also collected near Juneau by R. O'Clair (University of Alaska, Southeast) and from the Klondike Gold Rush National Historic Park near Skagway.

Cetraria nigricans (Retz.) Nyl.
Abundance: 2, infrequent?
Habitat: over ground in mainland alpine localities.
Abundance in North America/Range: common; circumpolar arctic-alpine, Alaska to northern British Columbia (where it is rare).

Cetraria nivalis (L.) Ach.
Abundance: 2, infrequent.
Habitat: over conifers and deciduous trees and shrubs in maritime forests to the subalpine and alpine.
Abundance in North America/Range: abundant; circumpolar arctic-alpine, Alaska to California.

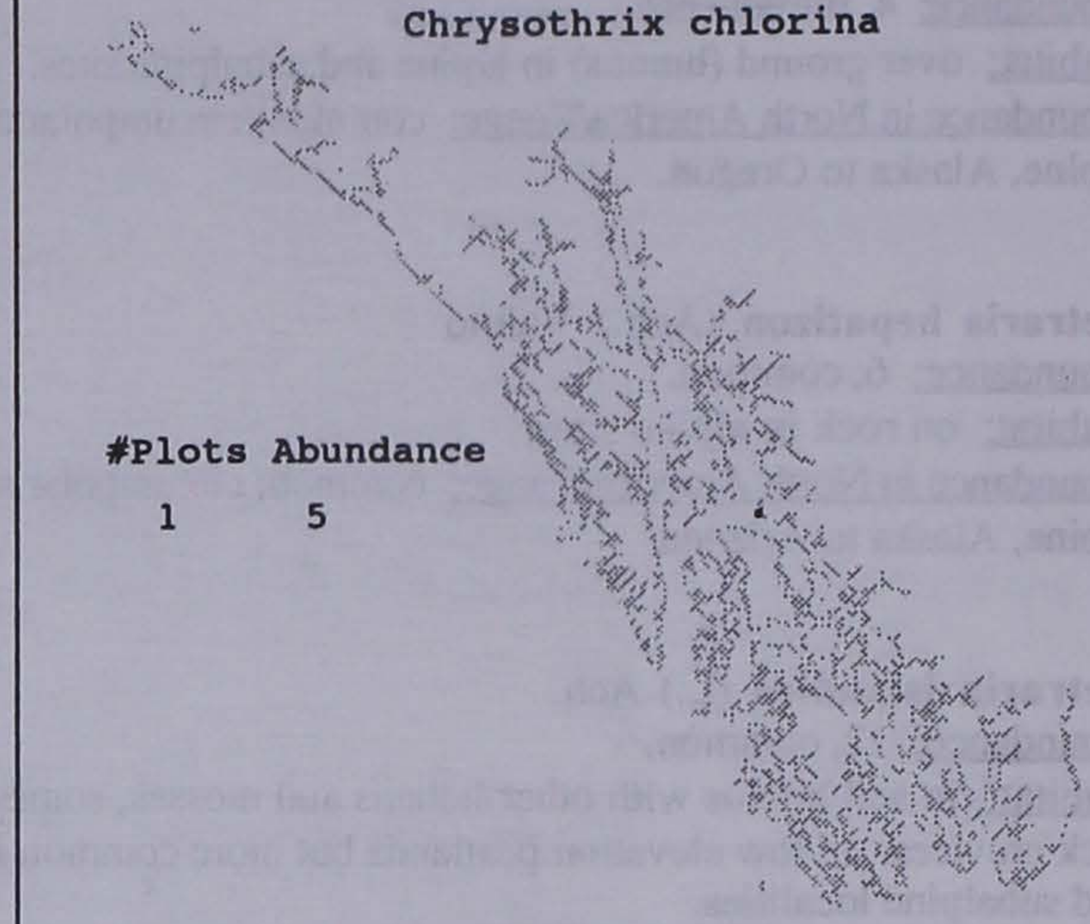
Cetraria subalpina Imsh.
Abundance: 10, common.
Habitat: over the lower branches of shrubs and *Tsuga mertensiana* in subalpine forests; over humus soils in high elevation peatlands and the alpine.
Abundance in North America/Range: locally common; probable endemic to western North America, Alaska to Oregon.

Chaenotheca stemonea



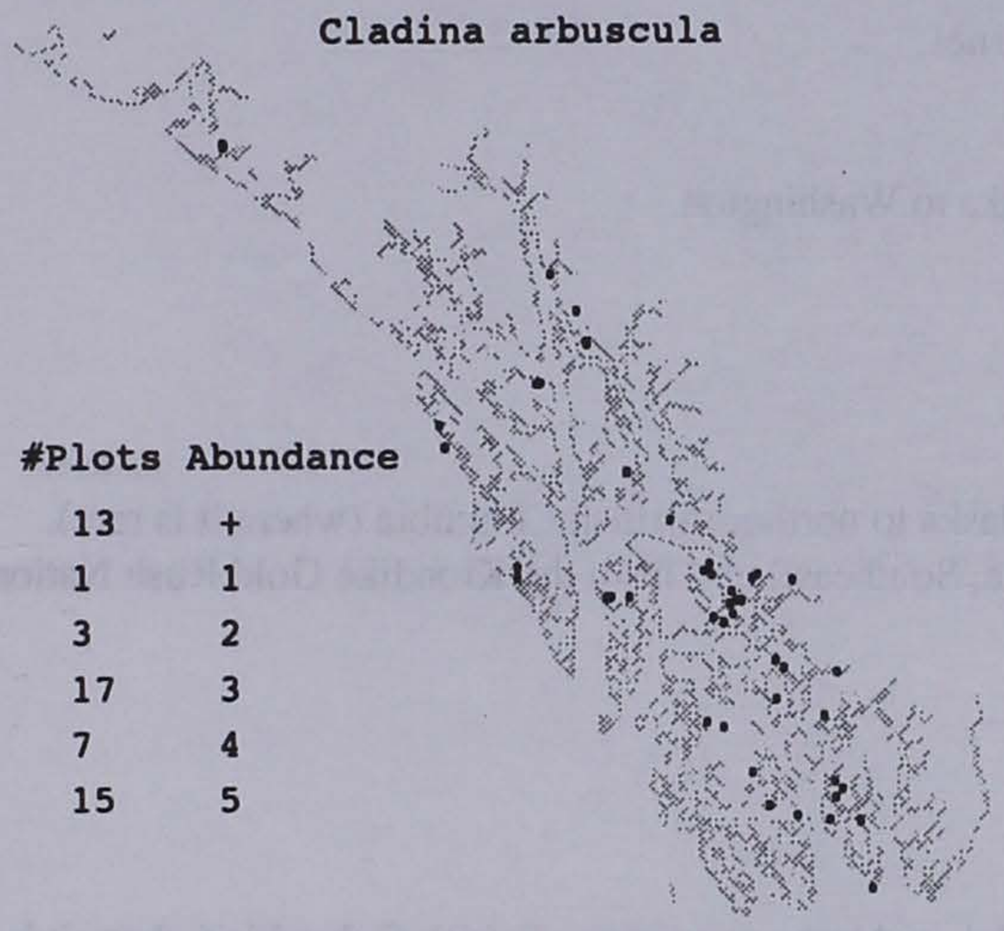
#Plots	Abundance
1	+

Chrysothrix chlorina



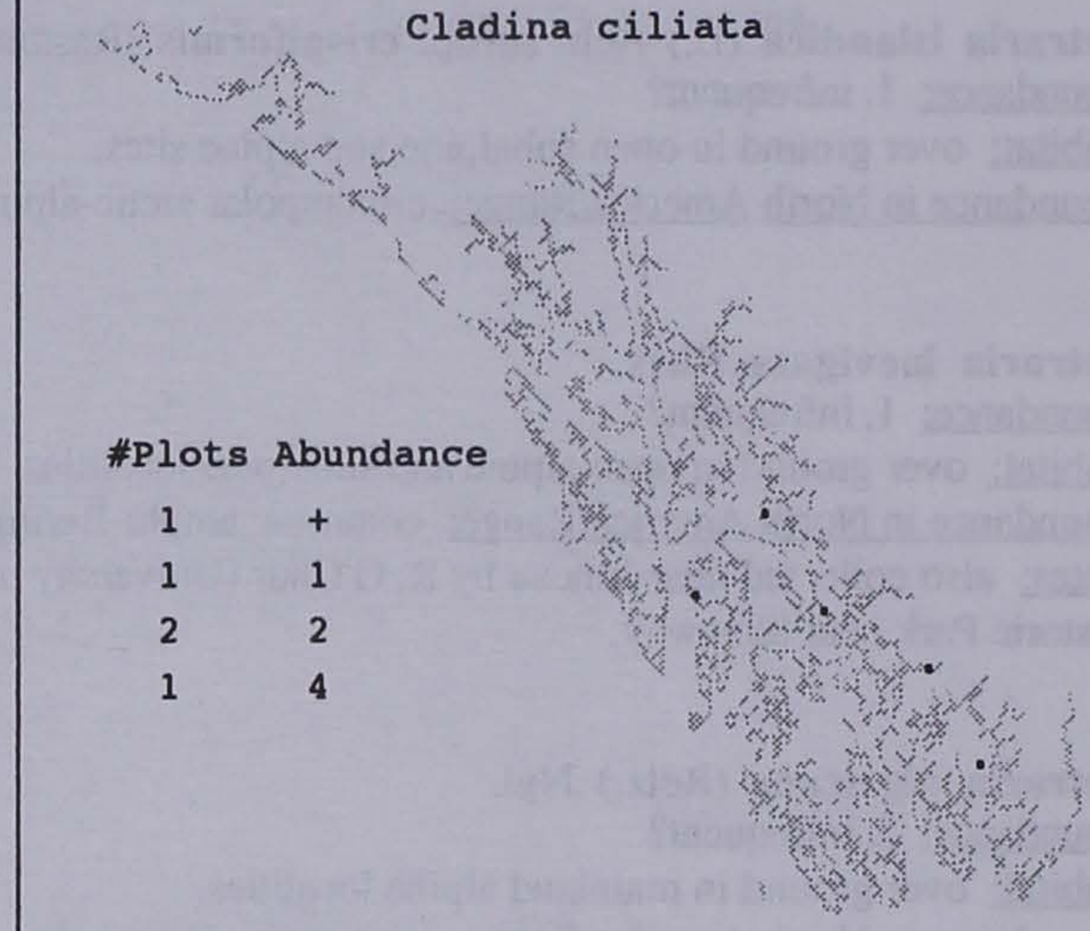
#Plots	Abundance
1	5

Cladina arbuscula



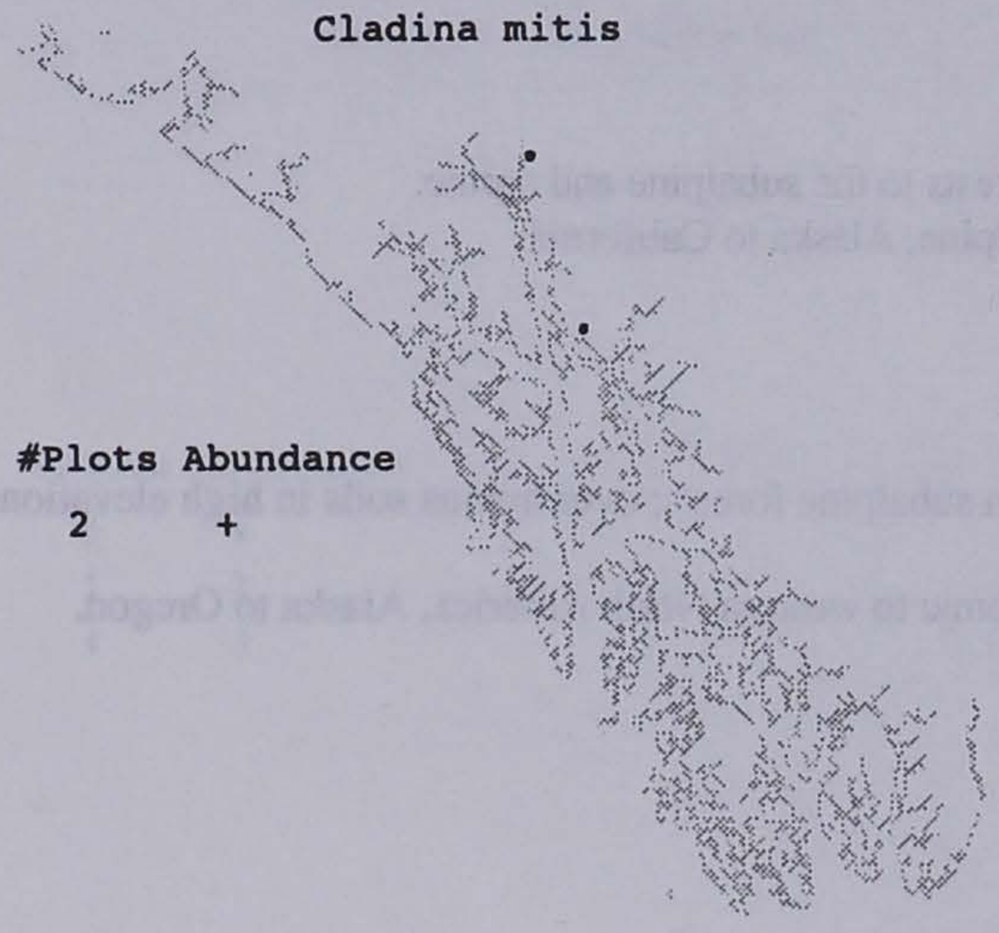
#Plots	Abundance
13	+
1	1
3	2
17	3
7	4
15	5

Cladina ciliata



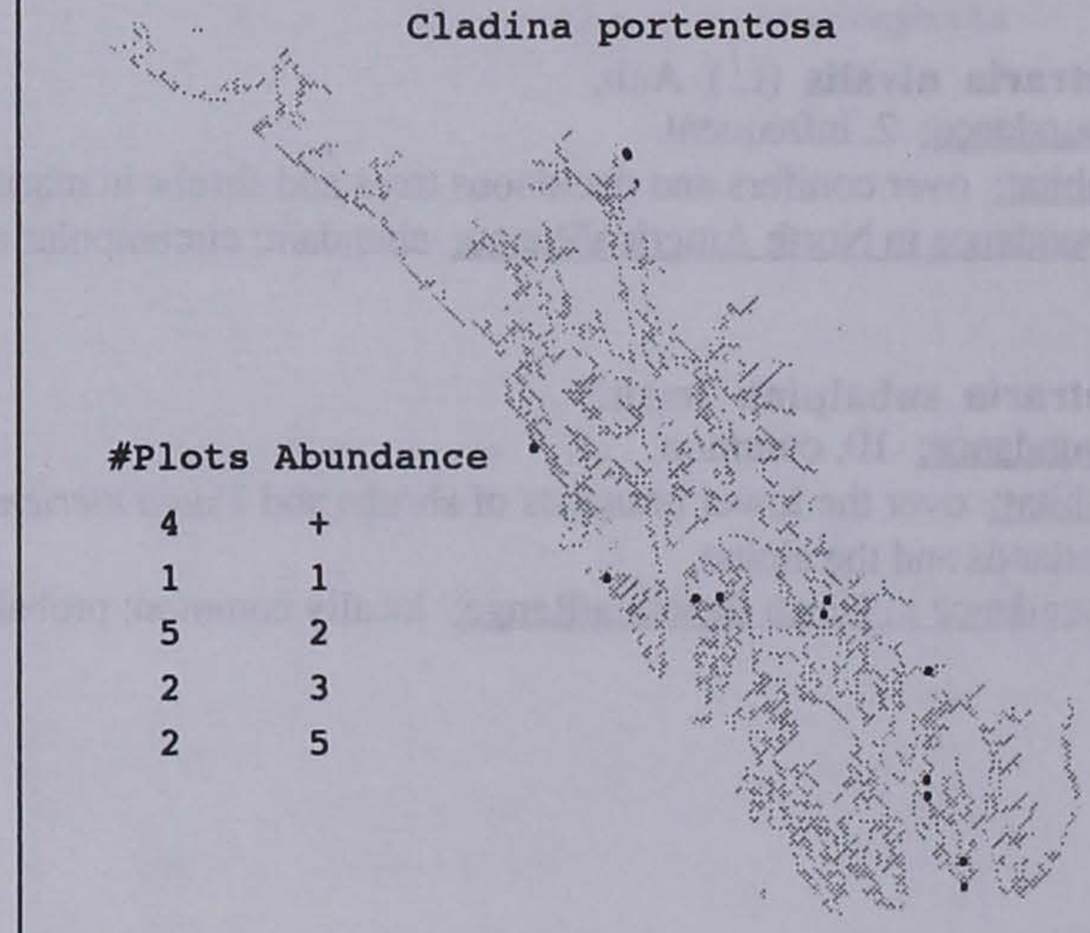
#Plots	Abundance
1	+
1	1
2	2
1	4

Cladina mitis



#Plots	Abundance
2	+

Cladina portentosa



#Plots	Abundance
4	+
1	1
5	2
2	3
2	5

Cetrelia alaskana (C. Culb. & Culb.) Culb. & C. Culb.
Abundance: 1, rare
Habitat: on *Alnus* along the Stikine River.
Abundance in North America/Range: rare (6 records from theArctic); amphi-Beringian.
Notes: southern range extension.

Cetrelia cetrarioides (Del. **ex** Duby) Culb. & C. Culb.
Abundance: 10, infrequent to common.
Habitat: over deciduous trees and shrubs and *Picea.* along freshwater and marine beaches.
Abundance in North America/Range: infrequent; incompletely circumpolar, Alaska to Washington.

Chaenotheca chrysocephala (Turner **ex** Ach.) Th. Fr.
Abundance: 2, ?
Habitat: on bark of conifers (*Picea* and *Taxus*); coastal forests.
Abundance in North America/Range: common; circumboreal.

Chaenotheca stemonea (Ach.) Müll. Arg.
Abundance: 1, ?
Habitat: on conifer bark. Our collection was from a 125 yr. old spruce stand on Mitkof Island.
Abundance in North America/Range: rarely collected. First reported in North America in 1975. Expected to have wide distribution.

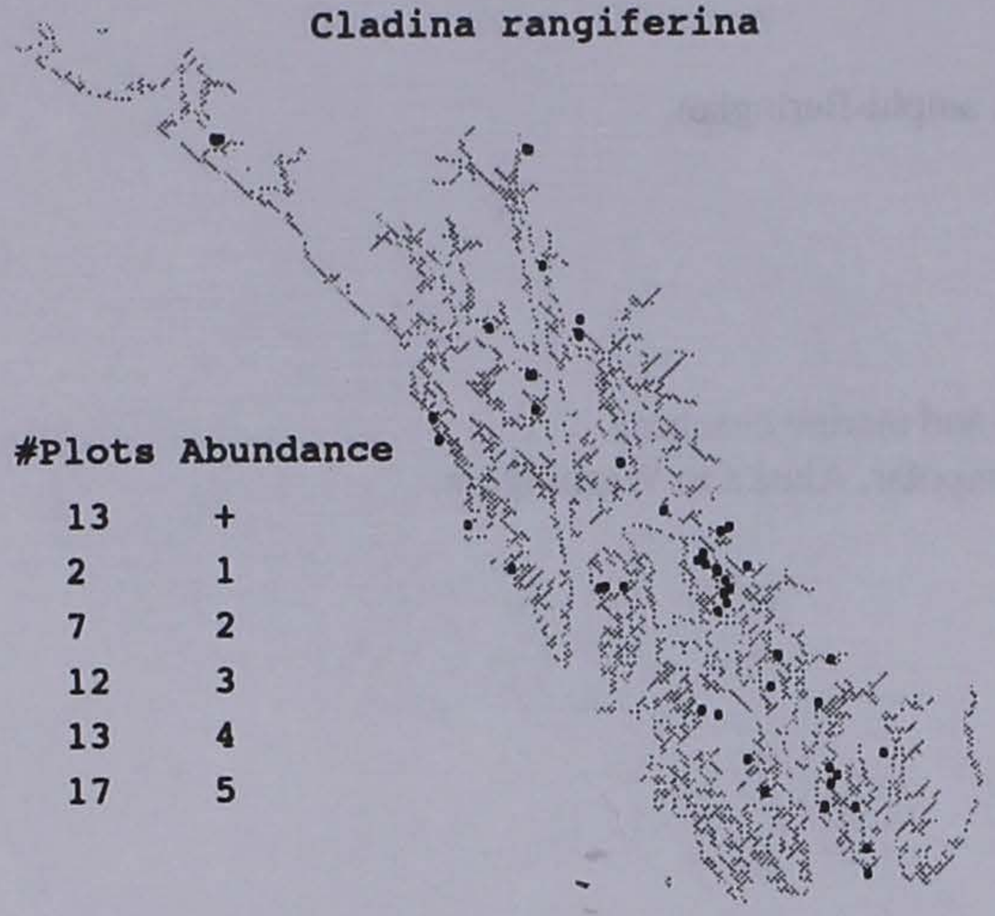
Chrysothrix chlorina (Ach.) Laundon
Sensitivity: 7.
Abundance: 1, ?
Habitat: in vertical stripes on the trunks of *Picea* along a marine beach.
Abundance in North America/Range: common; Europe, Himalayas, North America.

Cladina arbuscula (Wallr.) Hale & Culb. subsp. **beringiana** (Ahti) Golubk.
Abundance: 55, abundant.
Habitat: in peatlands; low elevations, alpine and subalpine.
Abundance in North America/Range: common; circumpolar low arctic and boreal.

Cladina ciliata (Stirton) Trass f. **tenuis** (Flörke) Ahti
Abundance: 5, infrequent.
Habitat: in organic soil with other lichens and mosses from low elevation peatlands to the subalpine and alpine.
Abundance in North America/Range: oceanic, northern, amphi-Atlantic, and Pacific Northwest North American coast.

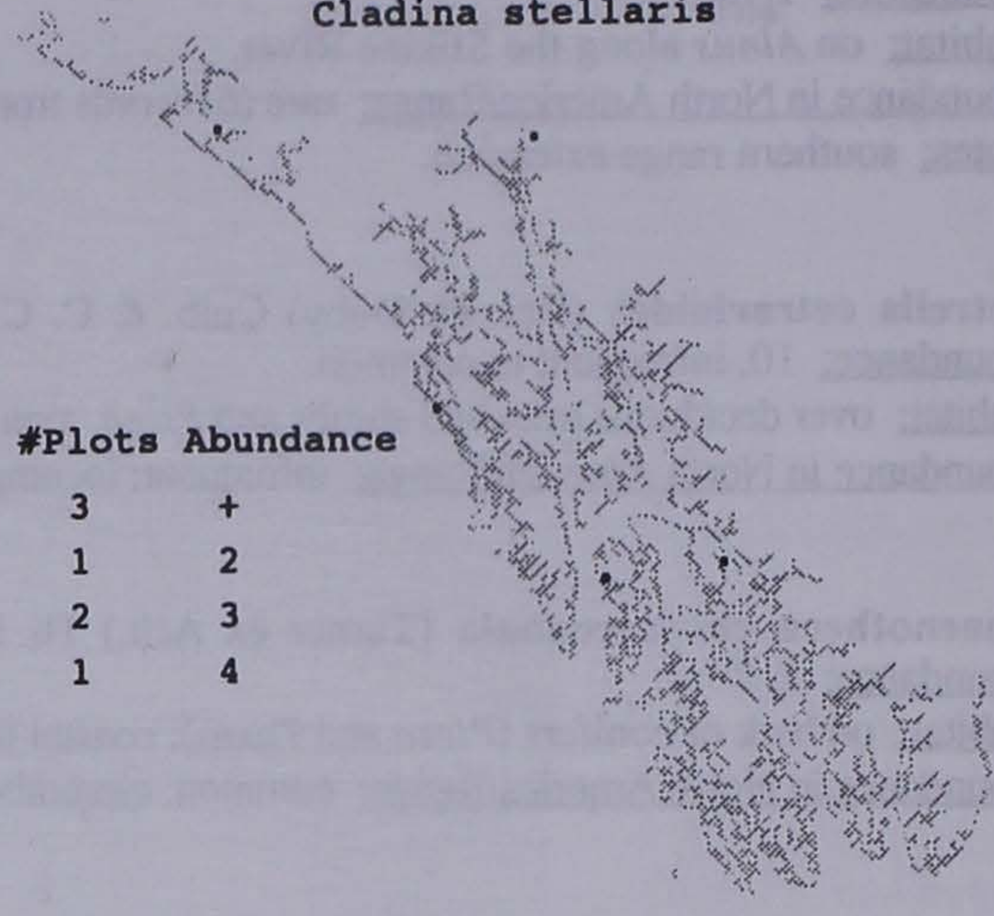
Cladina mitis (Sandst.) Hustich
Abundance: 3, rare.
Habitat: on sandy soils, in bogs and other humus-rich soils in open areas (Thomson, 1984).
Abundance in North America/Range: common; circumpolar arctic-alpine.
Notes: This lichen looks very similar to *C. arbuscula* and is most easily distinguished by its lack of fumarprotocetraric acid. It is rare in southeastern Alaska, known only from the terminal moraine of the Mendenhall Glacier (in glacial outwash) and from Klondike National Historic Park.

Cladina rangiferina



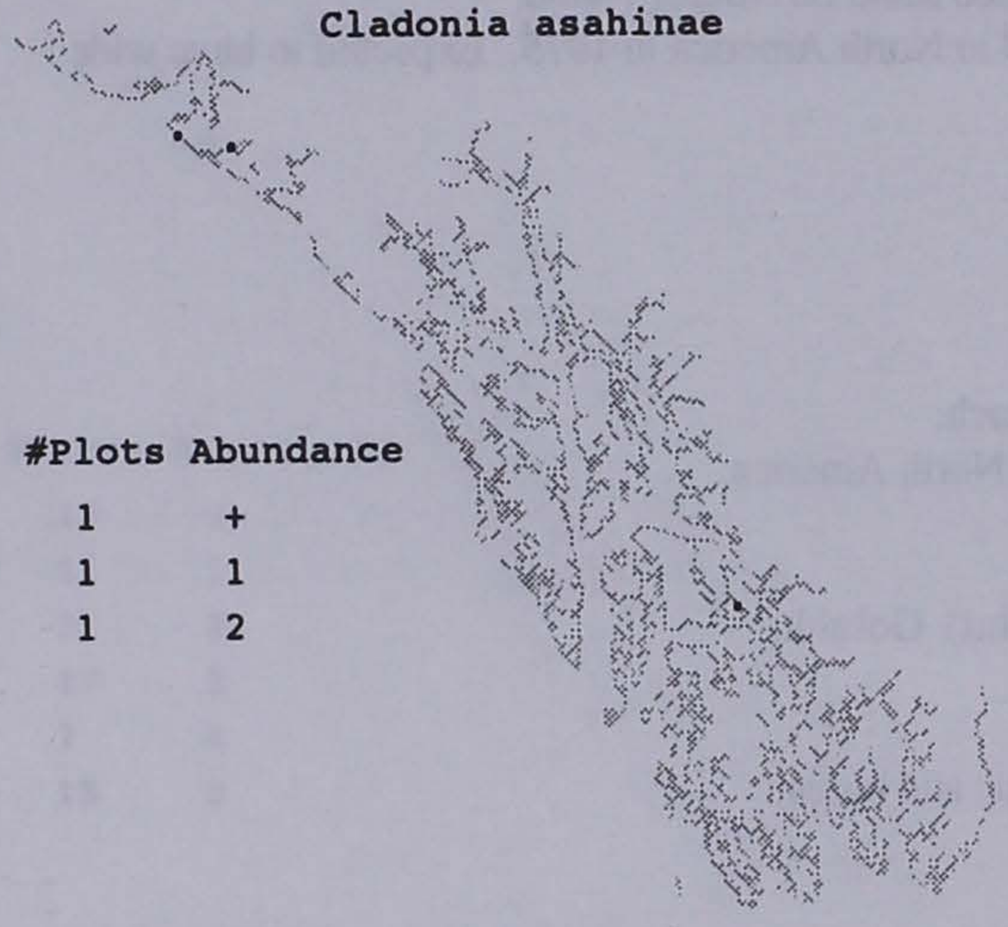
#Plots	Abundance
13	+
2	1
7	2
12	3
13	4
17	5

Cladina stellaris



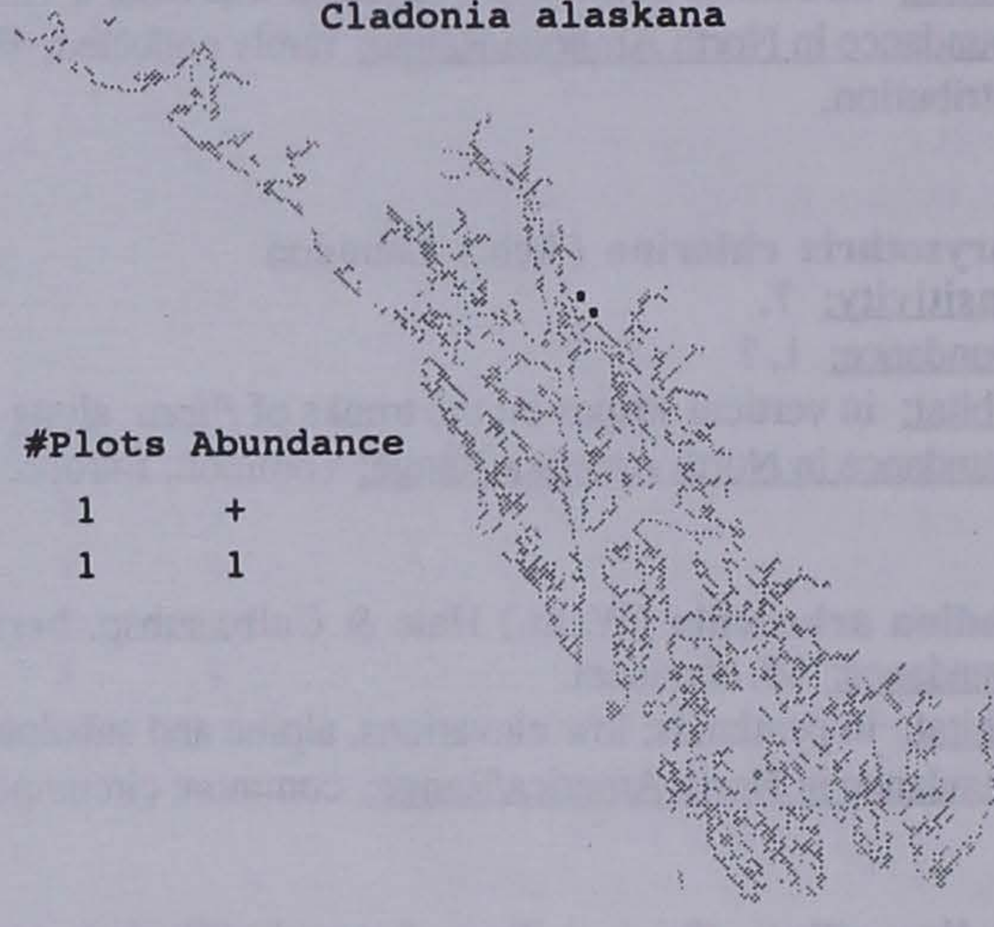
#Plots	Abundance
3	+
1	2
2	3
1	4

Cladonia asahinae



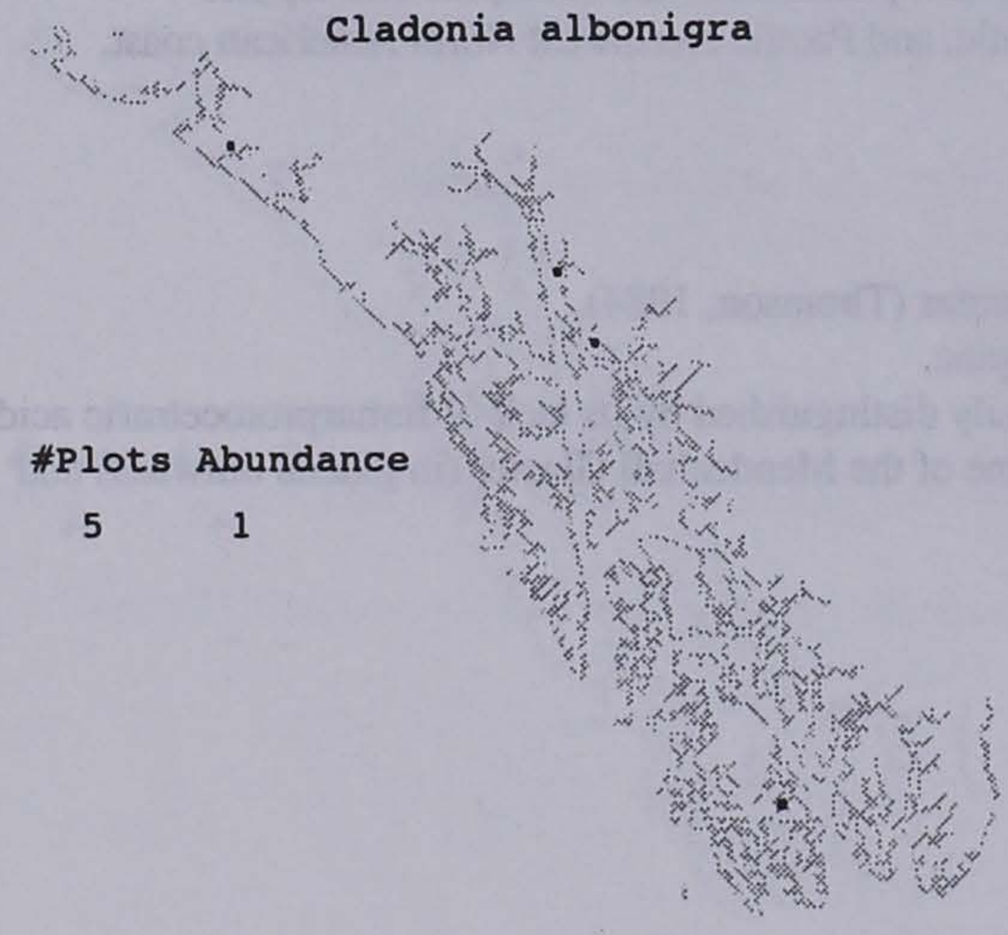
#Plots	Abundance
1	+
1	1
1	2

Cladonia alaskana



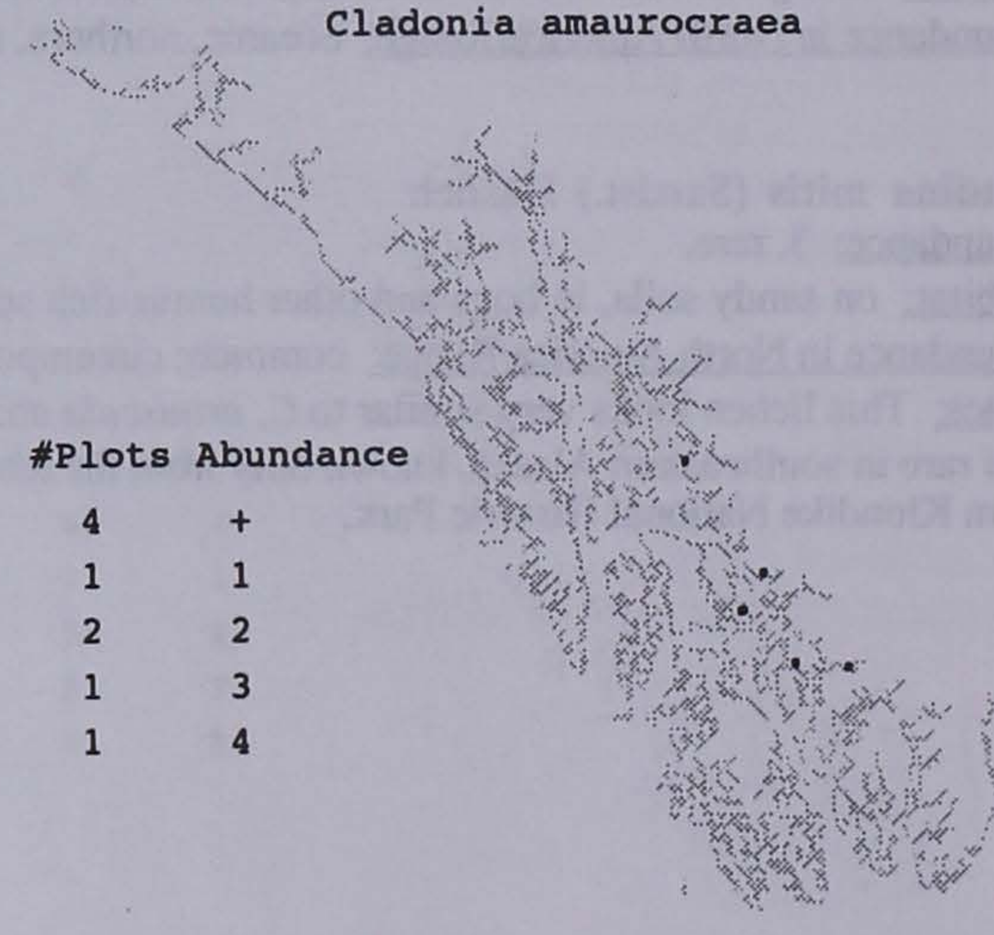
#Plots	Abundance
1	+
1	1

Cladonia albonigra



#Plots	Abundance
5	1

Cladonia amaurocraea



#Plots	Abundance
4	+
1	1
2	2
1	3
1	4

Cladina portentosa (Duf.) Follm.
Abundance: 14, common.
Habitat: on soil humus with other lichens and mosses; mainly in low elevation peatlands but not uncommon in subalpine and alpine elevations.
Abundance in North America/Range: western Europe, western North America.

f. **grisea**
Abundance: 1, ?
Abundance in North America/Range: infrequent.

subsp. **pacifica** (Ahti) Ahti f. **decolorans** (Ahti) Ahti
Abundance: 2, ?

Cladina pseudoevansii (Asah.) Hale & Culb.
Abundance: 0, rare.
Habitat: on soil humus, habitat conditions poorly understood.
Abundance in North America/Range: known from the northern Pacific Rim. Common in parts of its Asian range. Distribution poorly understood in North America where it is known only from Alaska (Ahti, 1961).
Notes: previously reported from Nichols Bay (Krog, 1968).

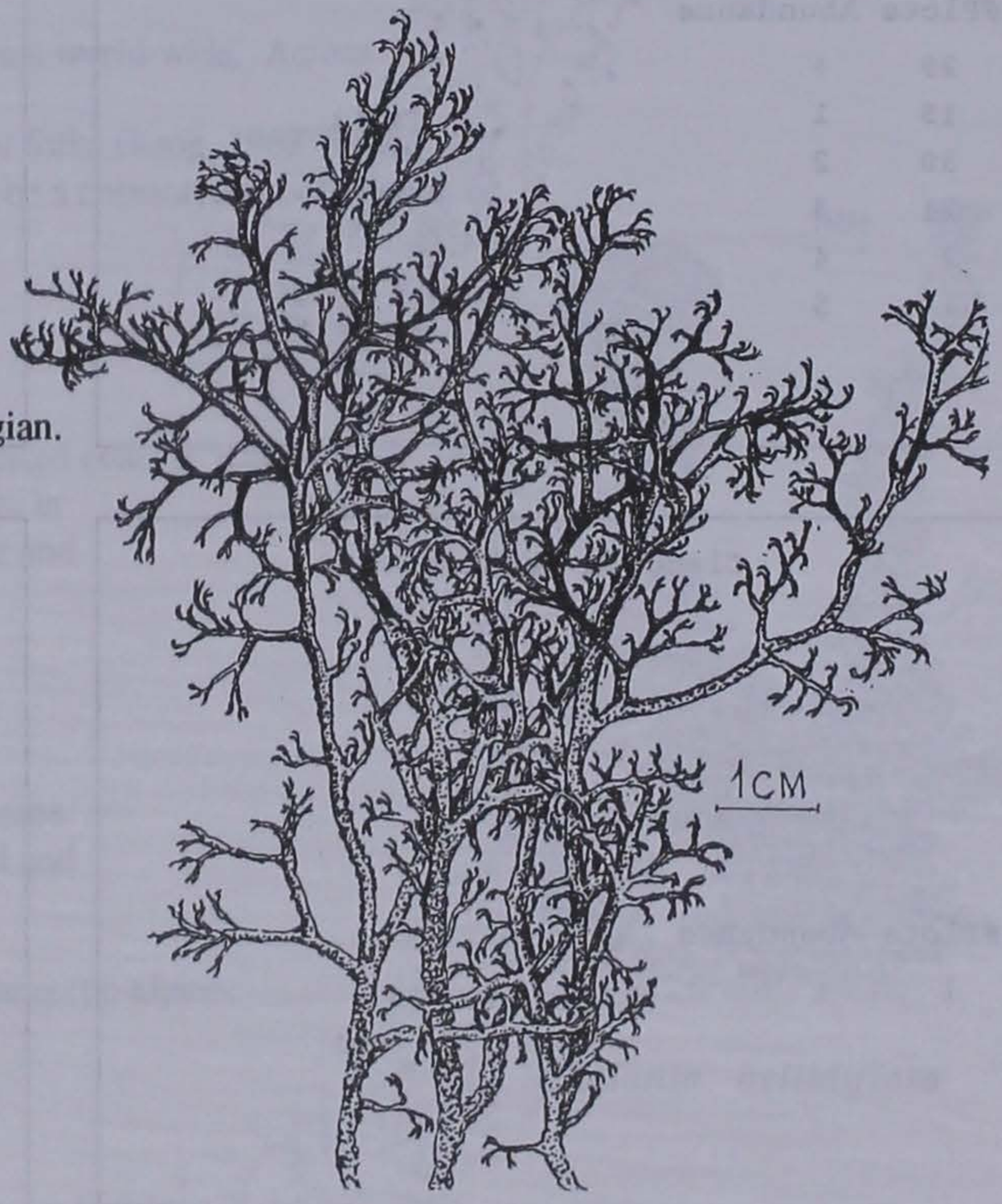
Cladina rangiferina (L.) Nyl. subsp. **rangiferina**
Abundance: 63, abundant.
Habitat: widespread on ground in peatlands and open grown forest stands from low to subalpine and alpine elevations.
Abundance in North America/Range: abundant; circumpolar arctic-alpine.
Notes: baseline elemental analysis data from the Tongass National Forest is available for this lichen.

Cladina stellaris (Opiz) Brodo
Abundance: 6, infrequent.
Habitat: widespread on humic soils in peatlands and open forest types from low elevation to subalpine and alpine.
Abundance in North America/Range: abundant; circumpolar arctic-alpine.

var. **aberrans** (des Abb.) Ahti
Abundance: 1, infrequent.
Abundance in North America/Range: coastal amphi-Beringian.

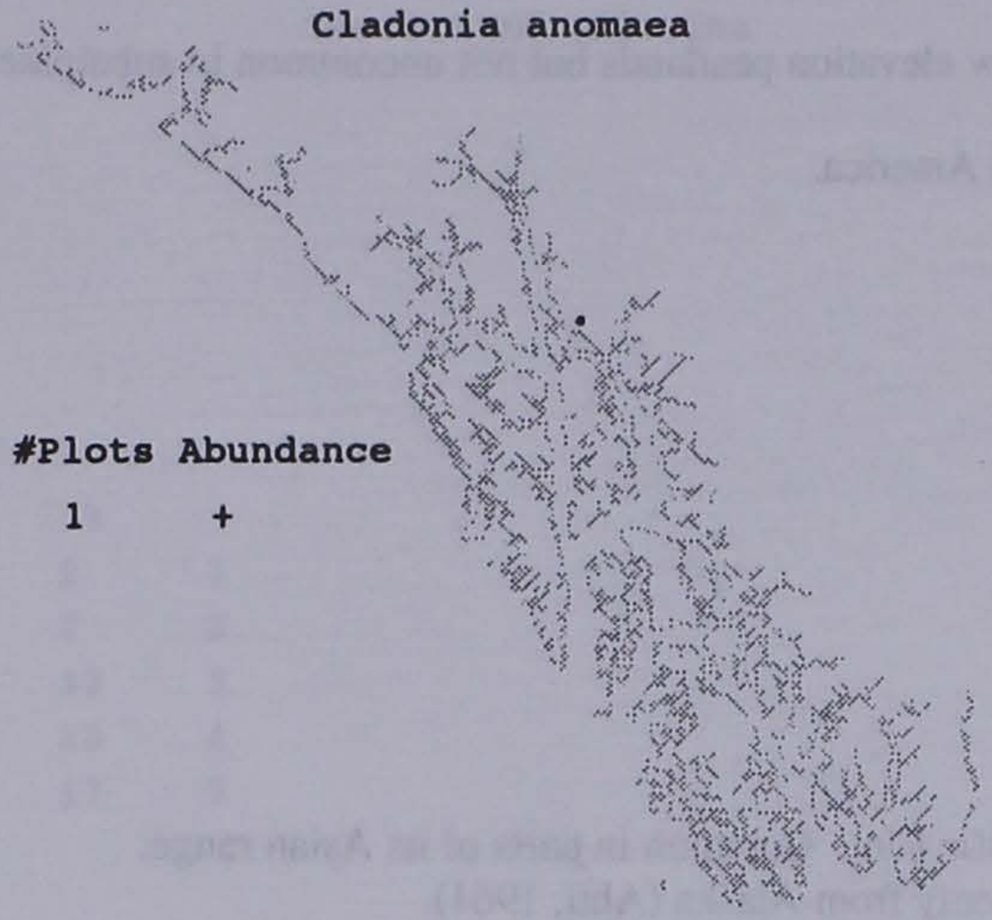
Cladina stygia (Fr.) Ahti
Abundance: 1, common?
Habitat: on ground in peatlands.
Abundance in North America/Range: circumpolar, arctic-alpine.
Notes: Looks like a dark or even dying form of *C. rangiferina*. and was almost certainly undercollected.

Cladonia alaskana Evans
Abundance: 1, infrequent?
Habitat: single collection from moss covered rocks in the subalpine (Crystal Mtn. on Mitkof Island).
Abundance in North America/Range: Northwest Territories, Yukon, Alaska, Kamchatka.



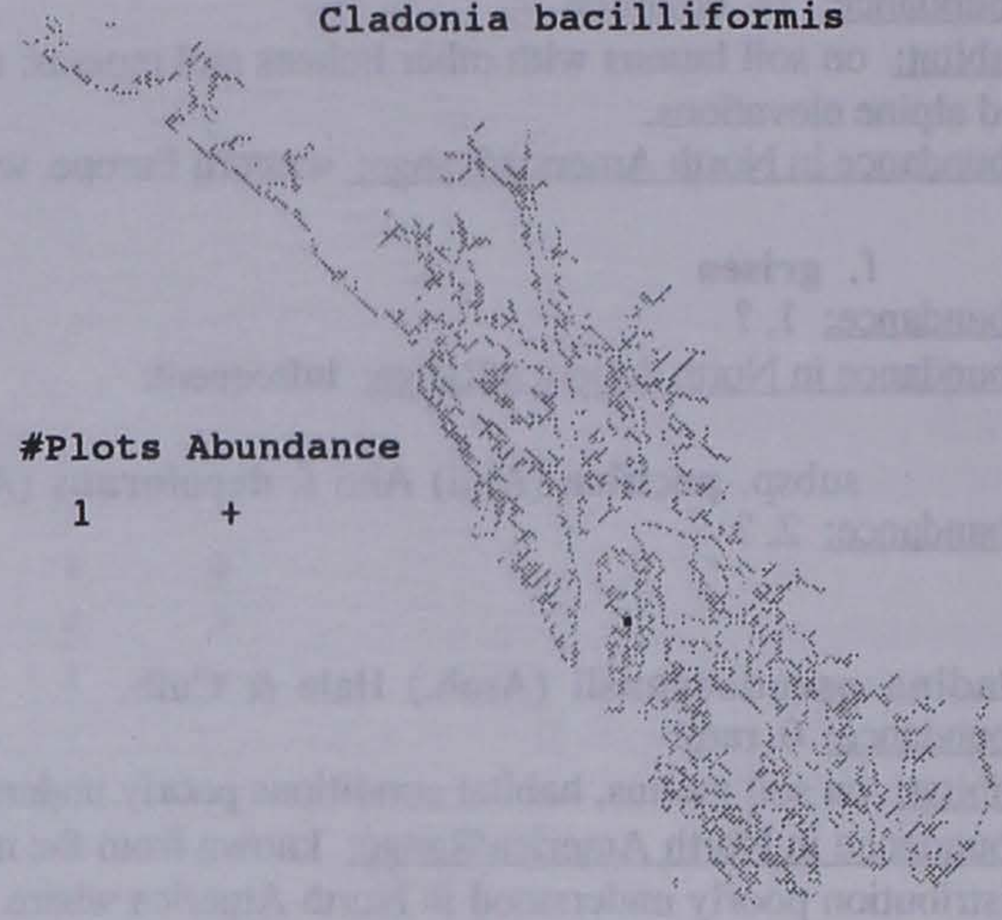
Cladina rangiferina

Cladonia anomaea



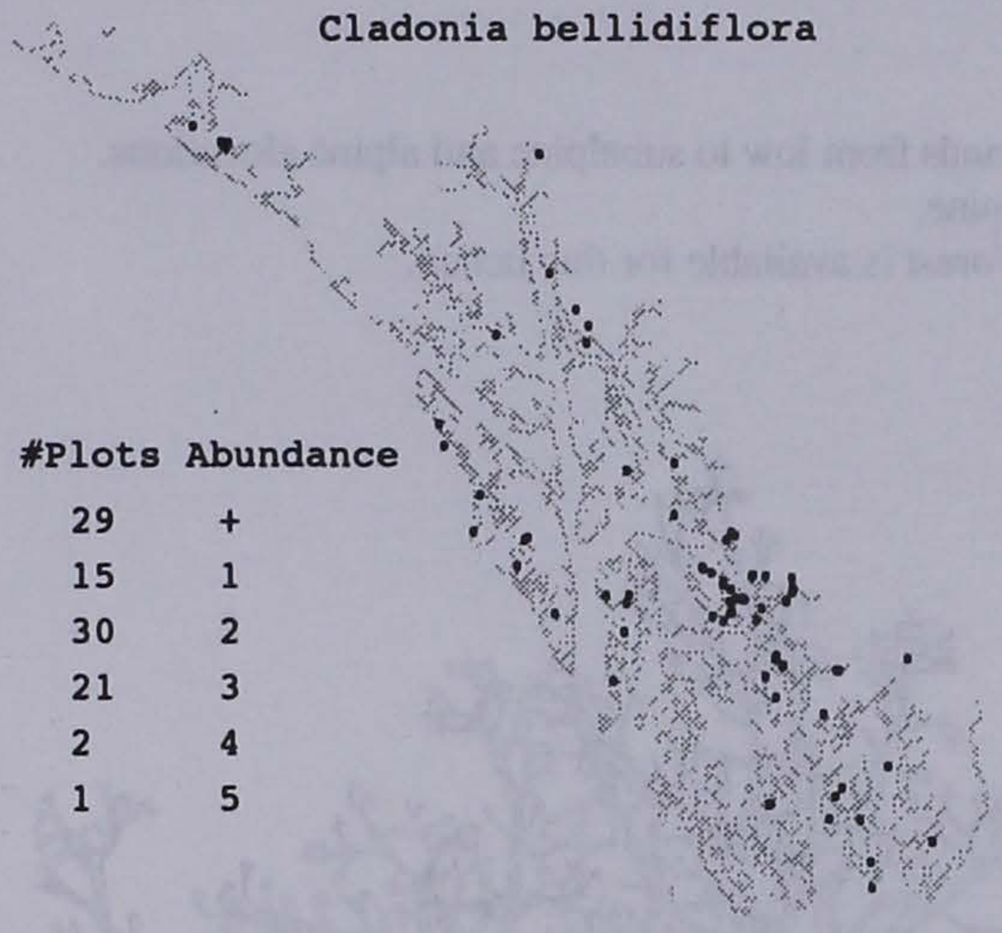
#Plots	Abundance
1	+

Cladonia bacilliformis



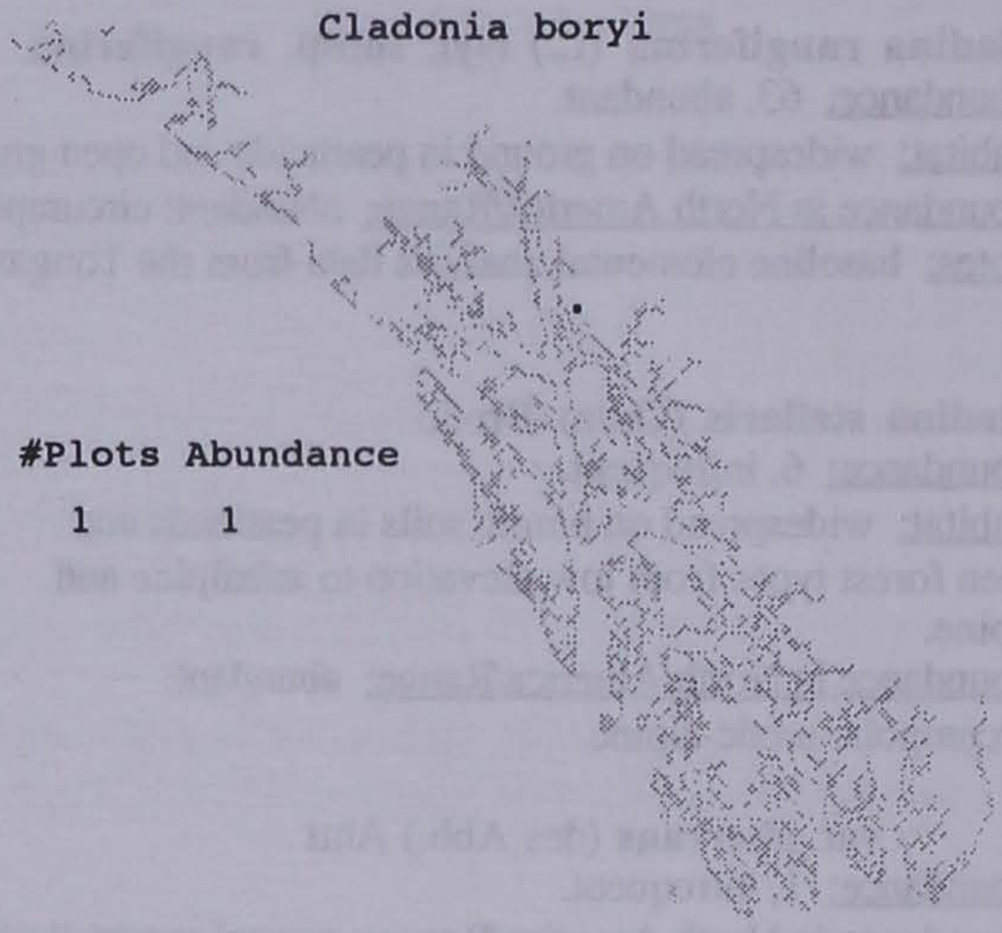
#Plots	Abundance
1	+

Cladonia bellidiflora



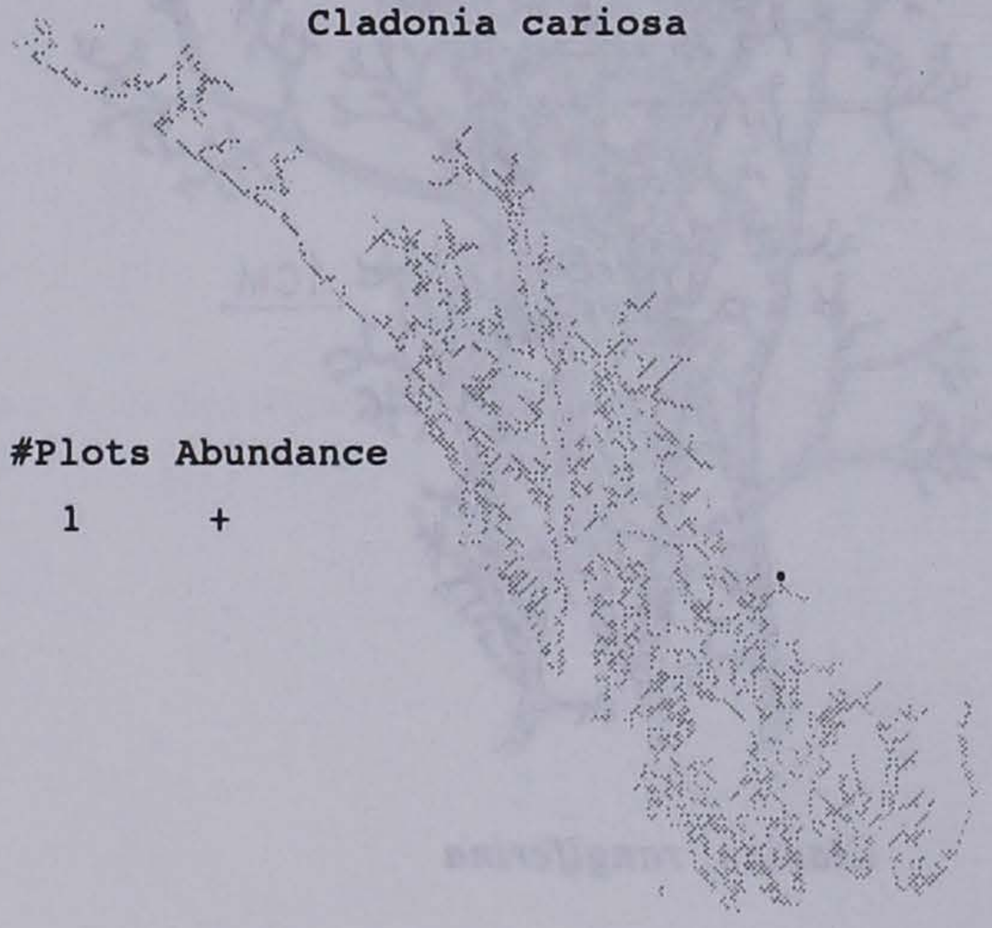
#Plots	Abundance
29	+
15	1
30	2
21	3
2	4
1	5

Cladonia boryi



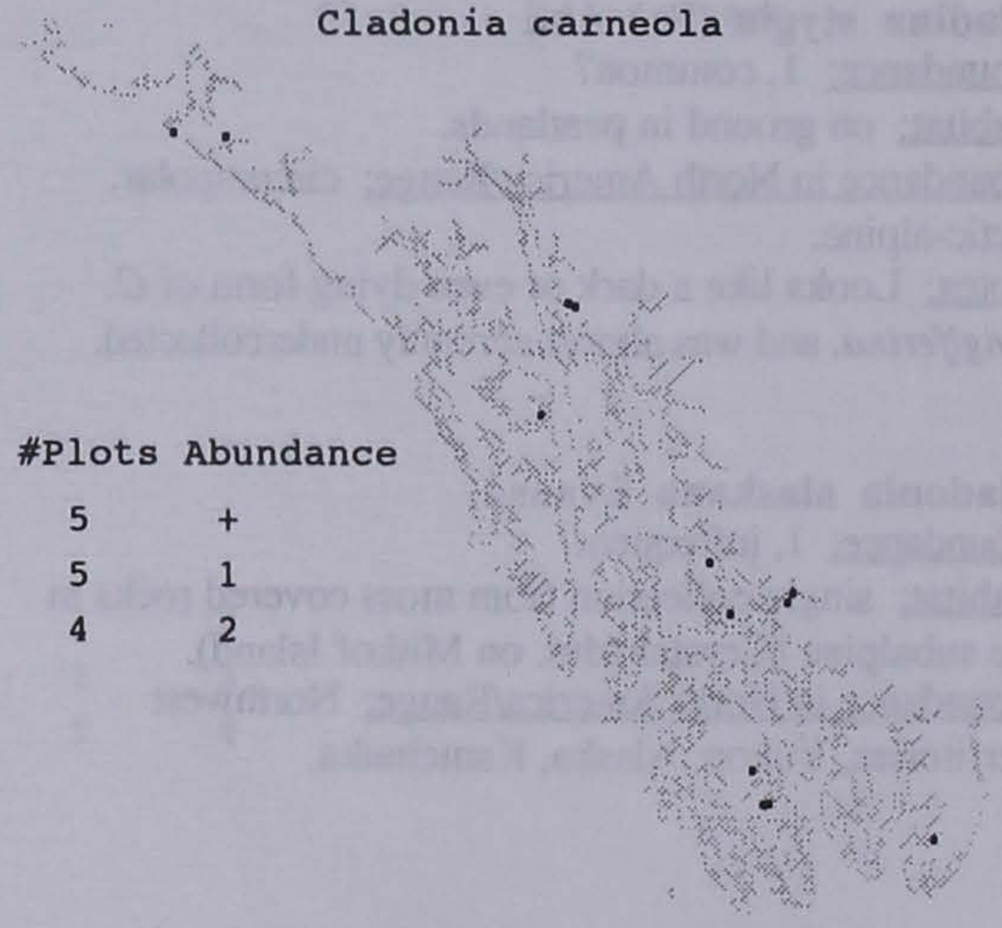
#Plots	Abundance
1	1

Cladonia cariosa



#Plots	Abundance
1	+

Cladonia carneola



#Plots	Abundance
5	+
5	1
4	2

Cladonia albonigra Brodo
Abundance: 6, infrequent
Habitat: in peatlands, open forest types and other open areas. So far only from low elevation sites. On moss over ground, logs or rock, or on boles or low branches of conifers, especially *Pinus contorta*..
Abundance in North America/Range: infrequent; southeastern Alaska and the Queen Charlotte Islands (Brodo, personal communication).
Notes: newly described species.

Cladonia amaurocraea (Flörke) Schaerer
Abundance: 8, common.
Habitat: widespread on ground in peatlands and open forest types from low elevation to subalpine and alpine.
Abundance in North America/Range: abundant; circumpolar low arctic and boreal.

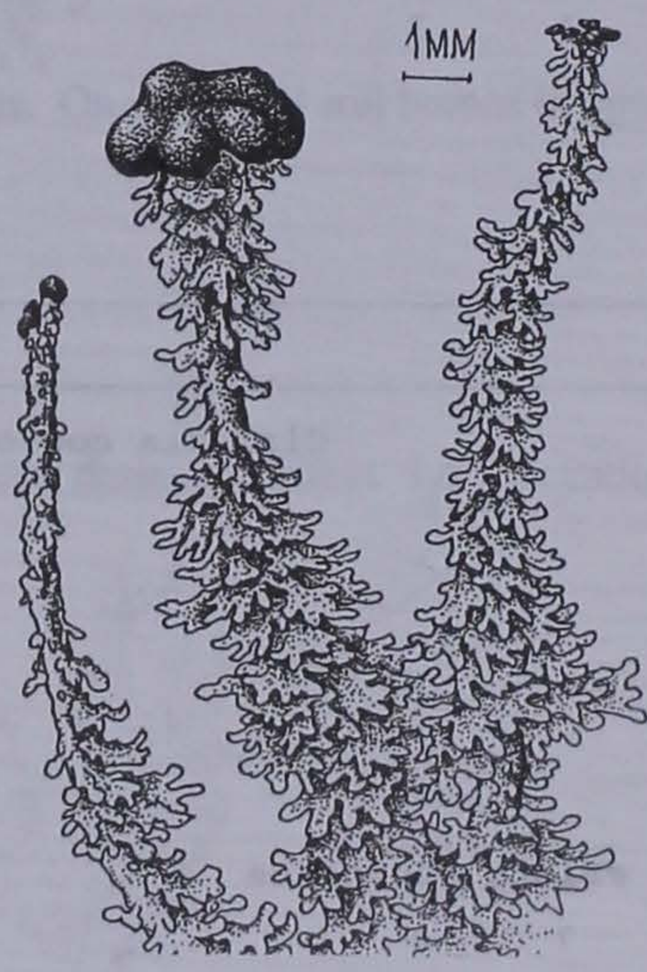
Cladonia anomaea (Ahti & P. James)
See **Cladonia ramulosa**

Cladonia asahinae Thoms.
Abundance: 3, rare.
Habitat: over humus soils, rocks, old logs and tree bases, sometimes near heavily populated bird colonies. Low elevation to subalpine (Thomson, 1976).
Abundance in North America/Range: poorly understood endemic to the North American west coast, Alaska to California, with a disjunct population in Idaho.

Cladonia bacillaris Nyl.
Abundance: 0, rare.
Habitat: Existing records from forested locations. Grows on old logs, tree bases, earthen banks and humus (Thomson, 1984).
Abundance in North America/Range: common; cosmopolitan world-wide. Across North America it is low arctic-boreal-temperate.
Notes: previously reported from the Indian River Trail near Sitka (Krog, 1968) and north Kuiu Island (Thomson, 1984). Regarded by some to be a chemotype of *Cladonia macilenta*.

Cladonia bacilliformis (Nyl.) Glück
Abundance: 1, rare-infrequent.
Habitat: single collection from rotting wood along the forested coast of Kuiu Island.
Abundance in North America/Range: infrequent; wide range in North America but rarely collected. Circumpolar low arctic and boreal.

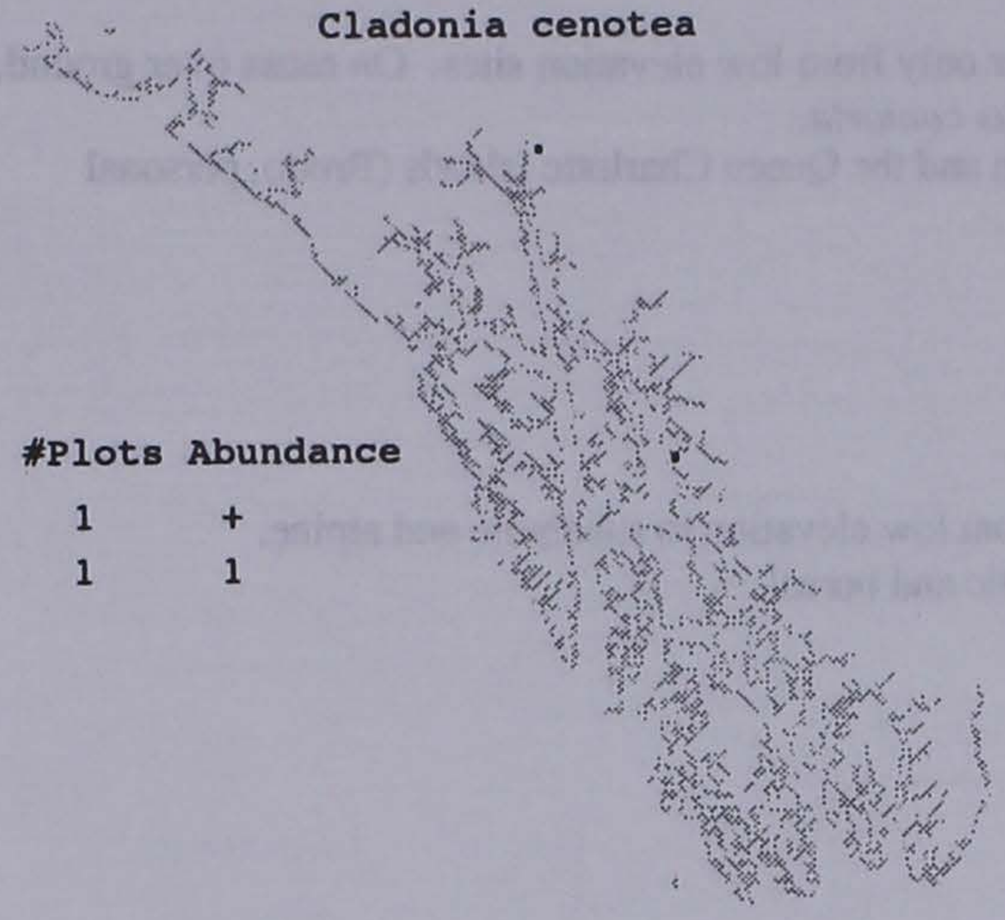
Cladonia bellidiflora (Ach.) Schaerer
Abundance: 93, abundant.
Habitat: very widespread, corticolous and lignicolous on bases and sometimes lower branches of conifers, common on soil and rarely over rock. Most forest types from low elevation to alpine.
Abundance in North America/Range: common; circumpolar arctic-alpine.



Cladonia bellidiflora

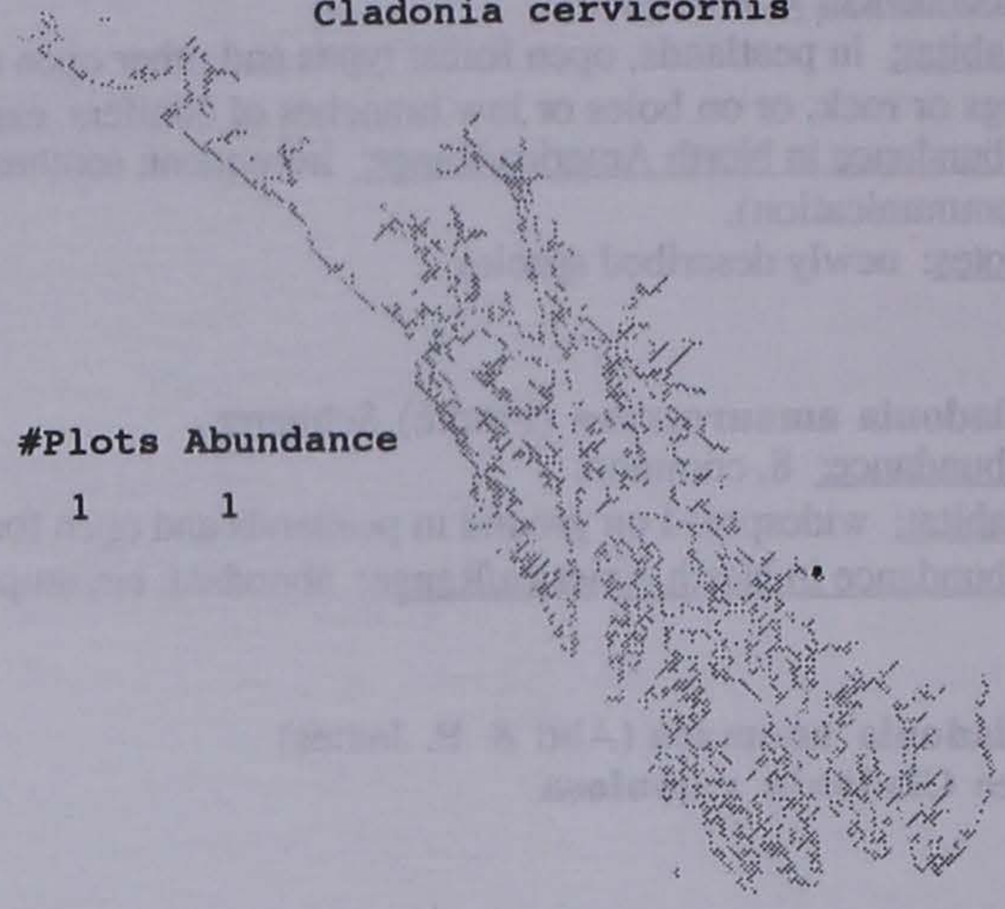
Cladonia borealis Stenroos
Abundance: 1, ?
Habitat: single collection from moss covered rock near glacier terminus.

Cladonia cenotea



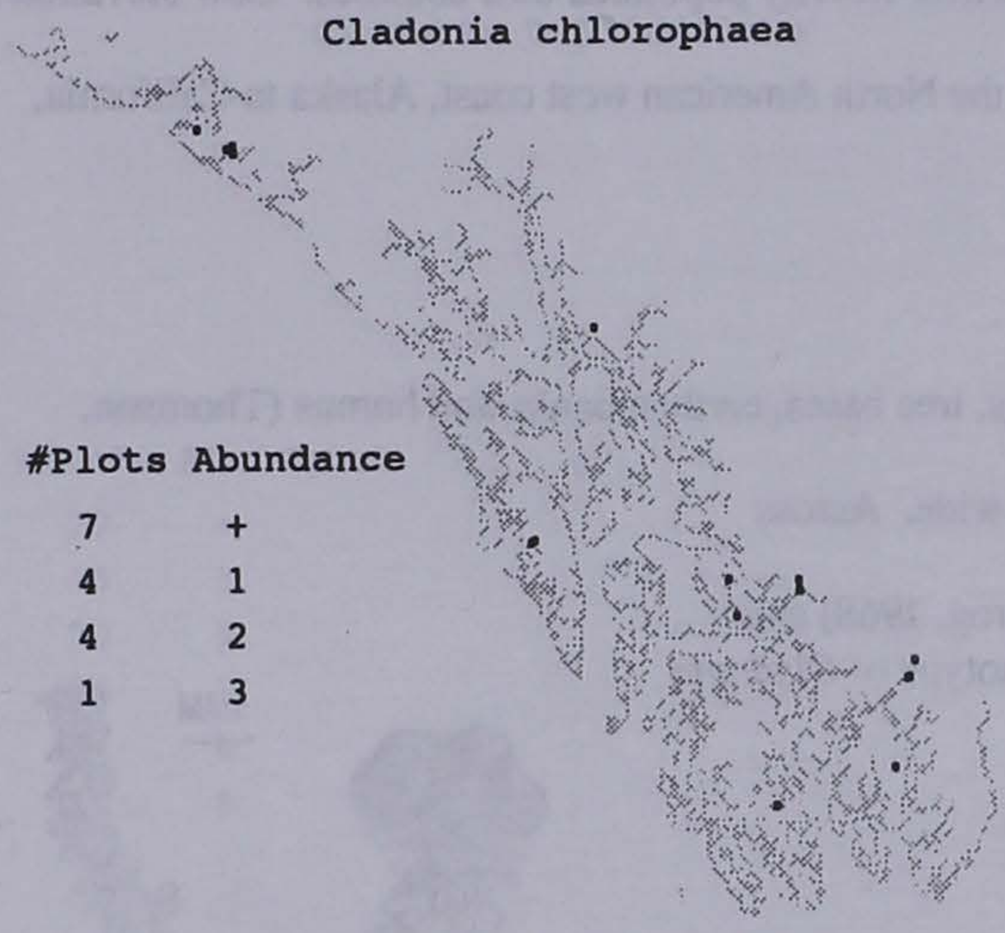
#Plots	Abundance
1	+
1	1
1	1

Cladonia cervicornis



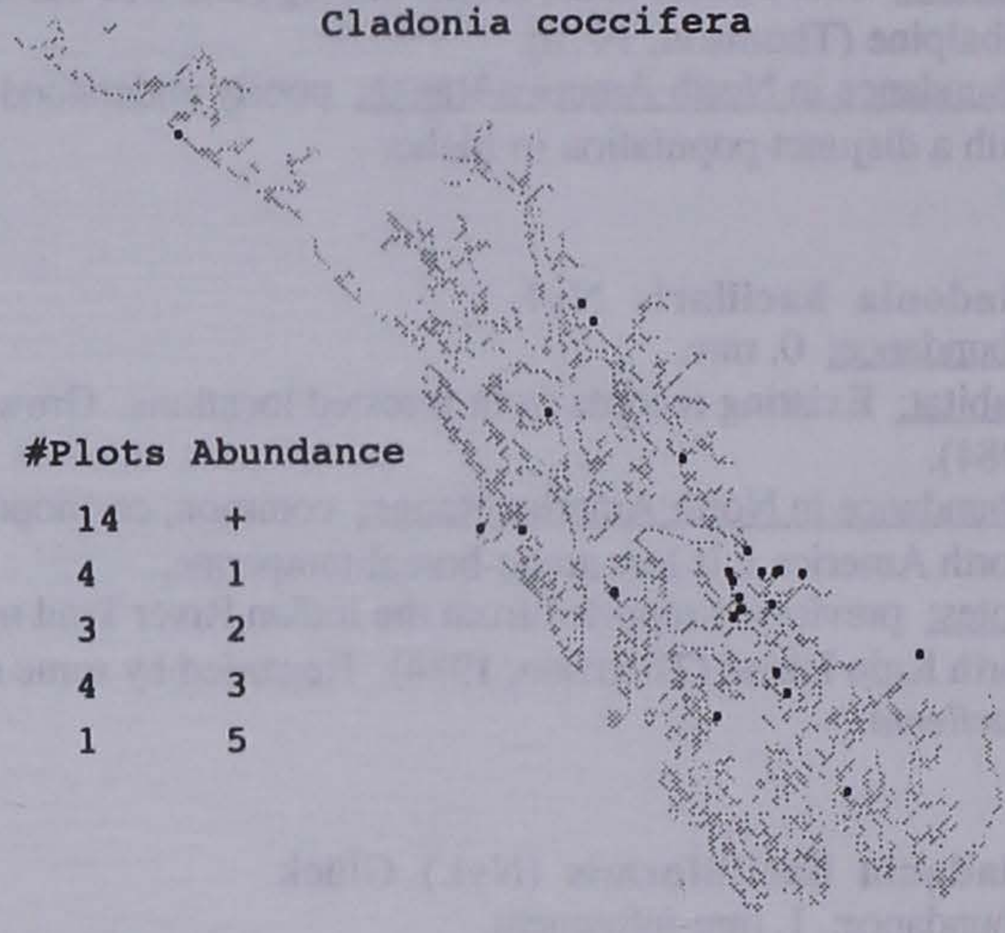
#Plots	Abundance
1	1

Cladonia chlorophaea



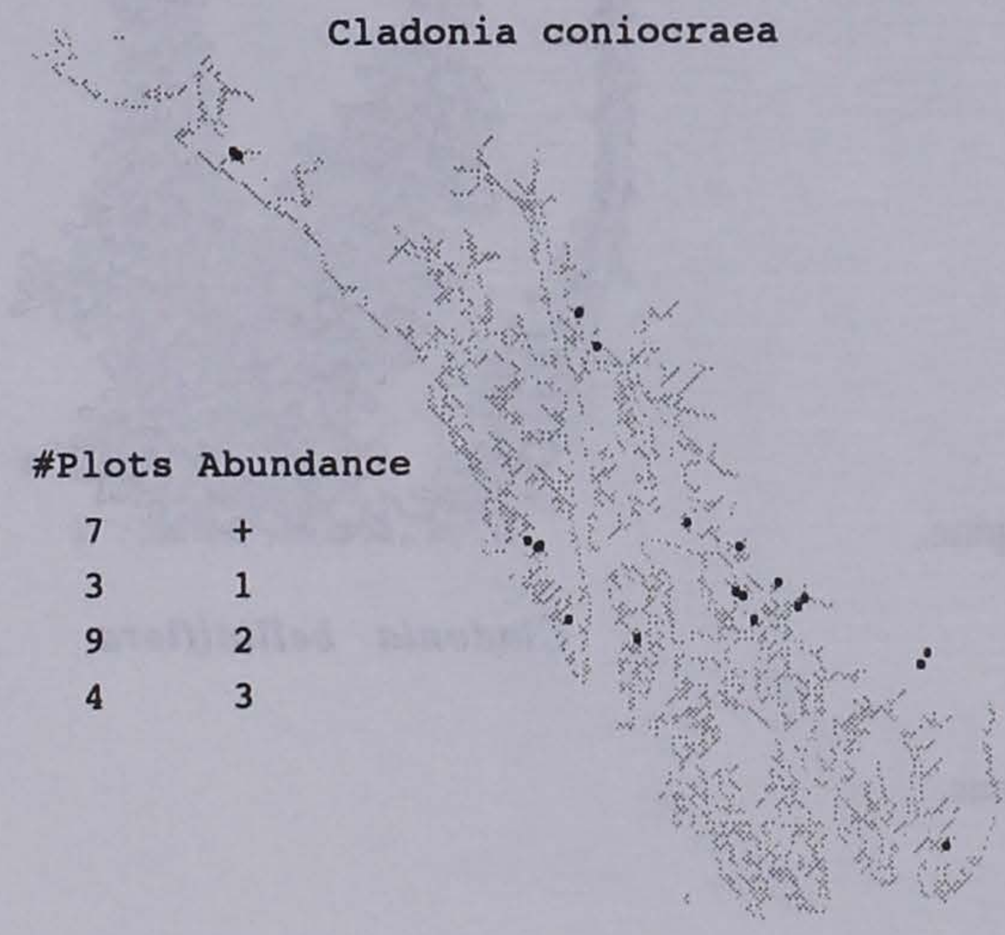
#Plots	Abundance
7	+
4	1
4	2
1	3

Cladonia coccifera



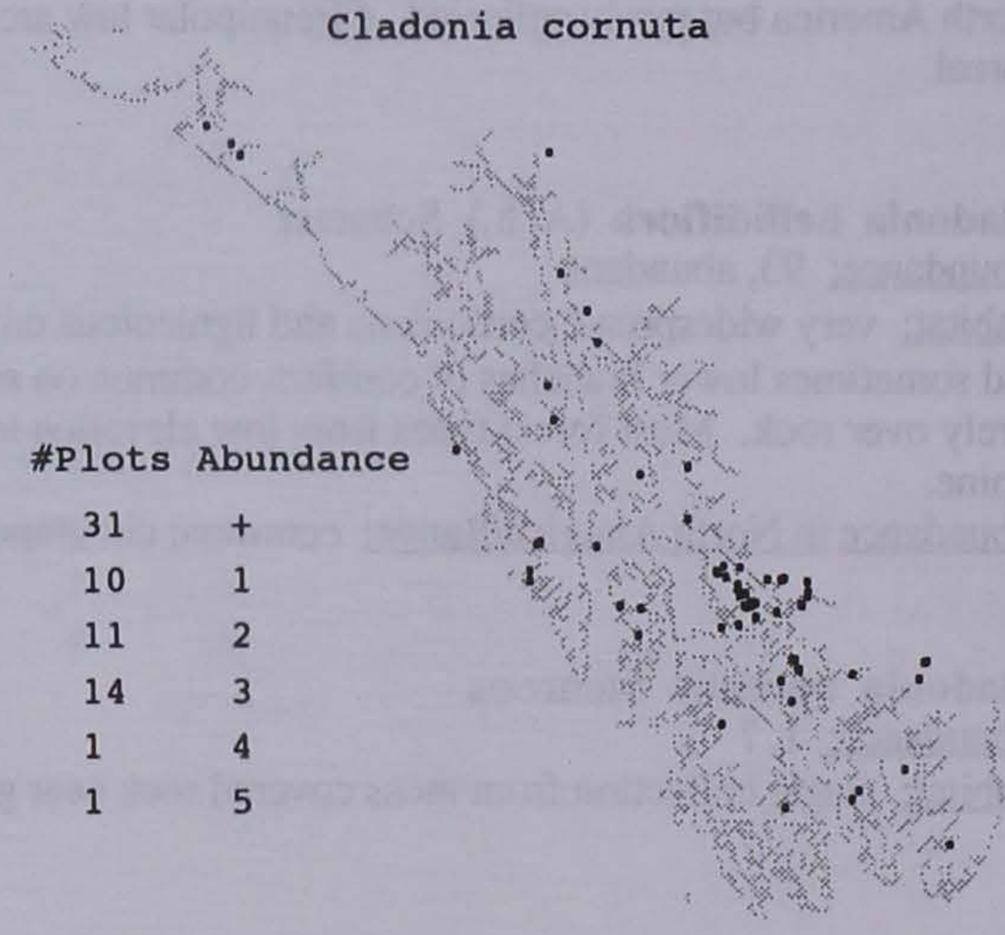
#Plots	Abundance
14	+
4	1
3	2
4	3
1	5

Cladonia coniocraea



#Plots	Abundance
7	+
3	1
9	2
4	3

Cladonia cornuta



#Plots	Abundance
31	+
10	1
11	2
14	3
1	4
1	5

Cladonia boryi Tuck.
Abundance: 0, rare?
Habitat: habitat and distribution patterns poorly understood.
Notes: previously reported from Deer Mtn. near Ketchikan (Krog, 1968). This report could be checked as other Alaskan reports of this species were found to be *C. nipponica*.

Cladonia cariosa (Ach.) Sprengel
Abundance: 1, infrequent.
Habitat: among soil humus with other lichens and mosses.
Abundance in North America/Range: common; circumpolar low arctic and boreal.

Cladonia carneola (Fr.) Fr.
Abundance: 14, common.
Habitat: widespread; on base of trunks and low branches of conifers and over rocks. At all elevations in most forest types and the alpine.
Abundance in North America/Range: common; circumpolar low arctic and boreal.

Cladonia cenotea (Ach.) Schaerer
Abundance: 2, infrequent.
Habitat: one collection from a decomposing beach log, the other from the forest floor of a spruce forest.
Abundance in North America/Range: abundant; circumpolar low arctic and boreal.

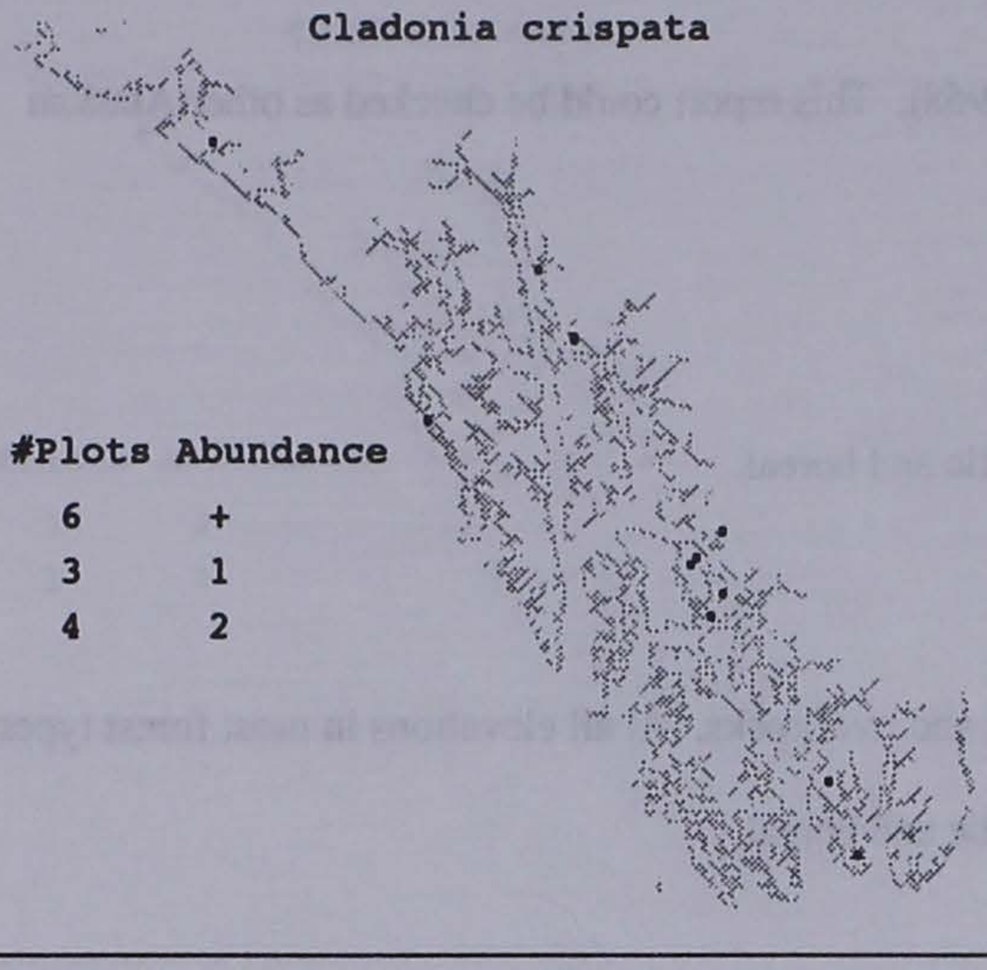
Cladonia cervicornis (Ach.) Flotow subsp. **verticillata** (Hoffm.) Ahti
Abundance: 0, rare-infrequent.
Habitat: sandy soils, rock outcrops, on thin soil, and old rotten logs (Thomson 1967). In Europe it is characteristic of peatlands (Purvis et al., 1992).
Abundance in North America/Range: abundant; main range in temperate regions but extending to arctic boundaries.
Notes: previously reported from Mt. Roberts near Juneau and Deer Mtn. near Ketchikan (Krog, 1968).

Cladonia chlorophaea (Flörke) Spreng.
Abundance: 15, common to infrequent.
Habitat: mainly on bark and lignum of conifers and deciduous shrubs in forested habitats. On rocks and soil humus in open better drained habitats. Low elevation to subalpine forests; also in alpine habitats.
Abundance in North America/Range: abundant; circumpolar low arctic and boreal.

Cladonia coccifera (L.) Willd.
Abundance: 22, abundant.
Habitat: corticolous on conifers in forested habitats, on rocks and soil humus in open better drained habitats. Low elevation to alpine.
Abundance in North America/Range: abundant; circumpolar low arctic and boreal.

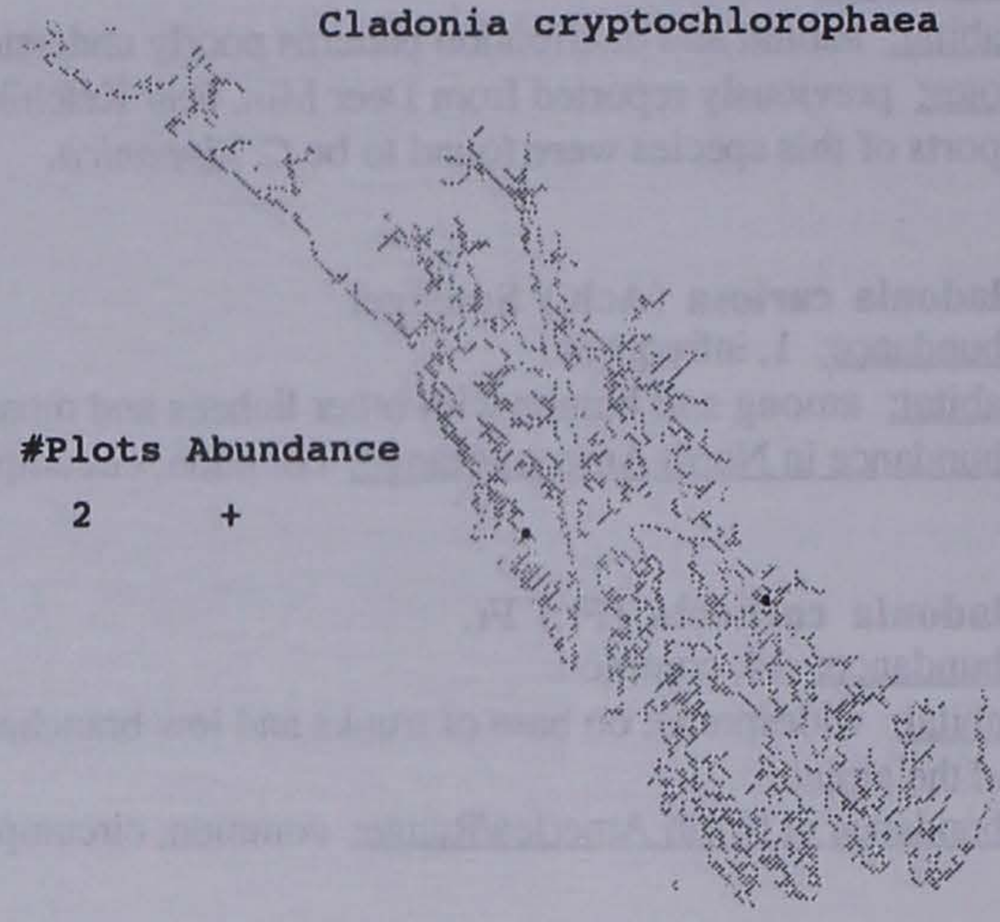
Cladonia coniocraea auct. (fide Ahti)
Sensitivity: 1.6-5.7.
SO_2 Sensitivity: intermediate, 34-52/52-78, 23.
Abundance: 19, abundant.
Habitat: primarily on bark of conifers and, rarely, on deciduous shrubs. Low elevation to subalpine forests.
Abundance in North America/Range: abundant; circumpolar boreal.

Cladonia crispata



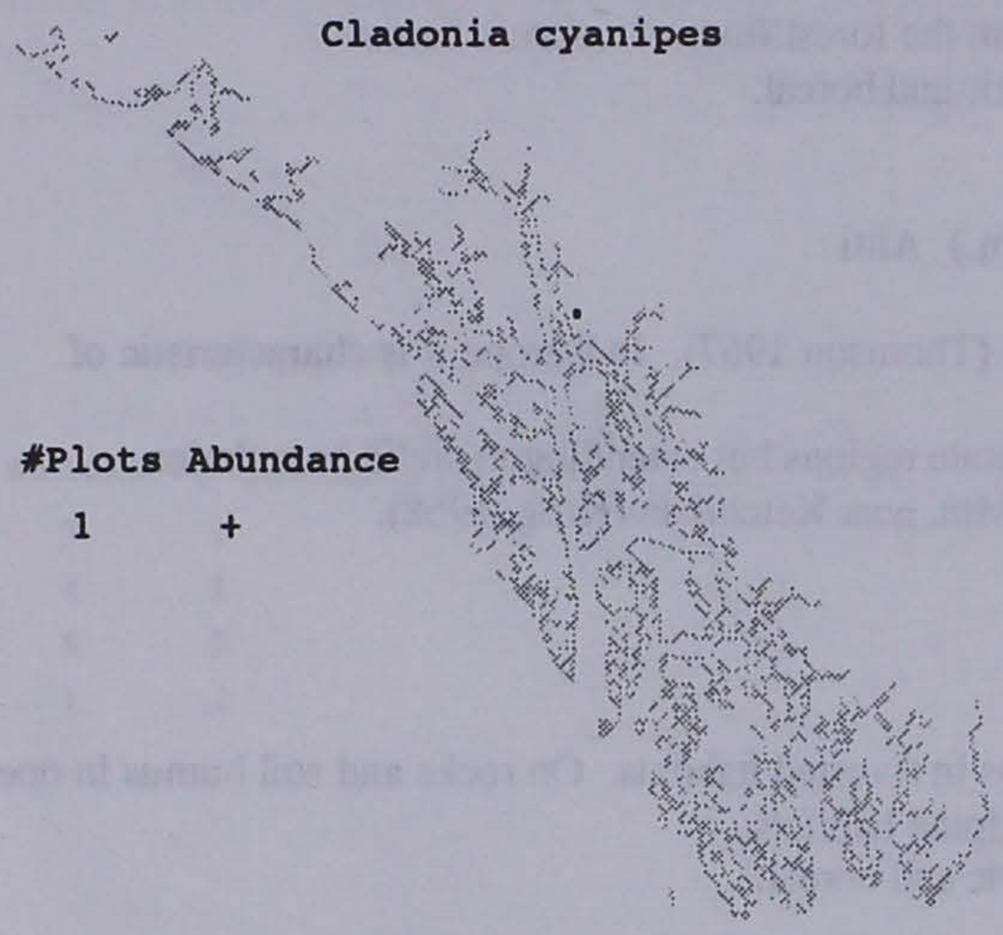
#Plots	Abundance
6	+
3	1
4	2

Cladonia cryptochlorophaea



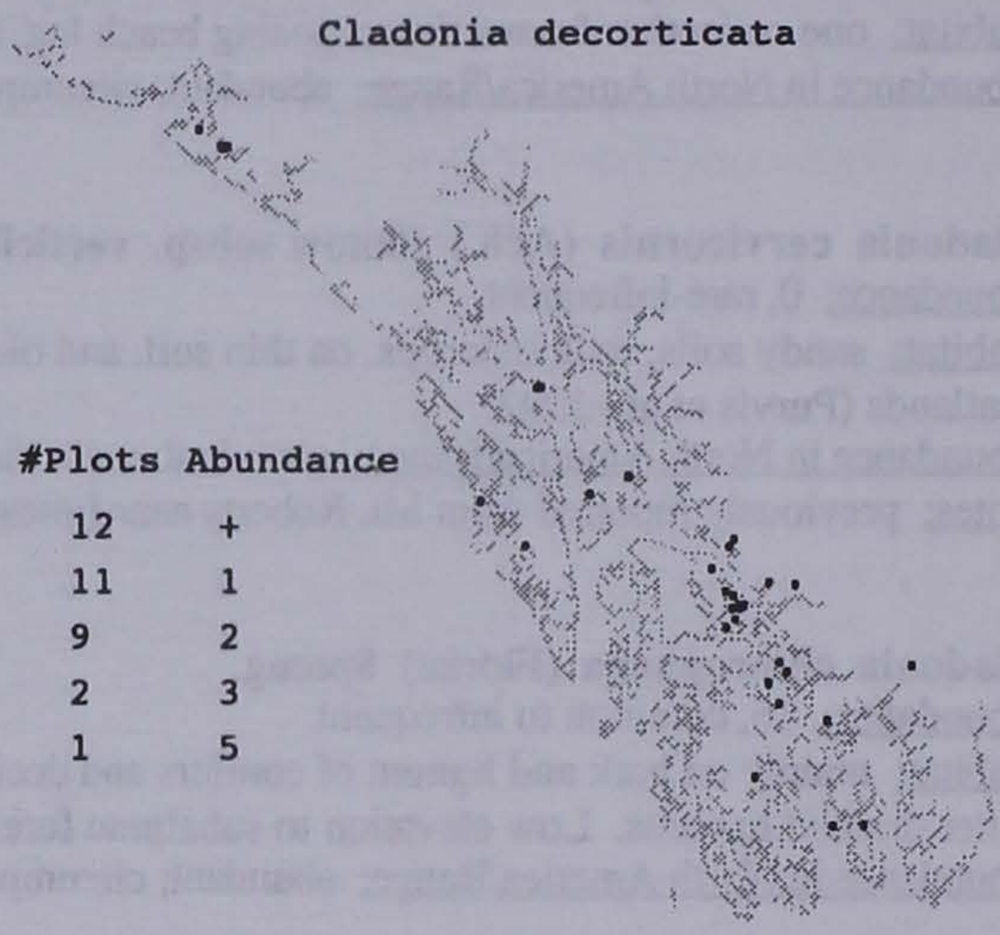
#Plots	Abundance
2	+

Cladonia cyanipes



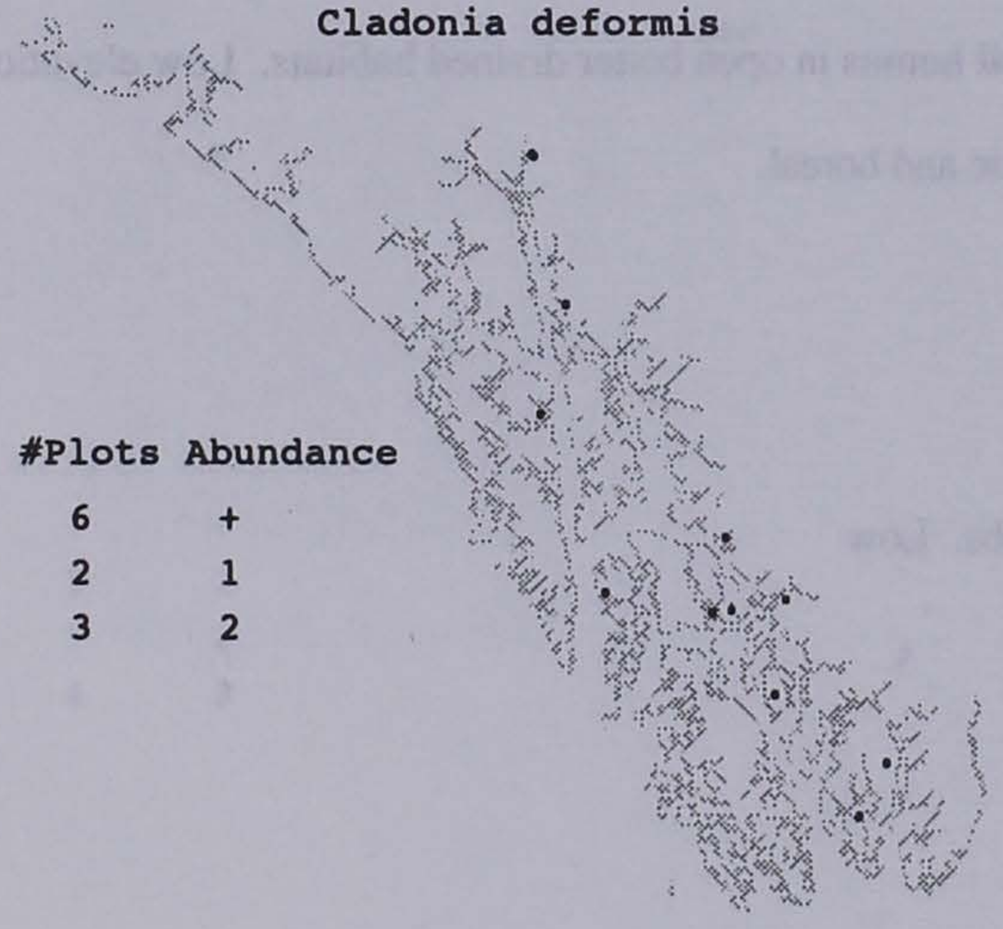
#Plots	Abundance
1	+

Cladonia decorticata



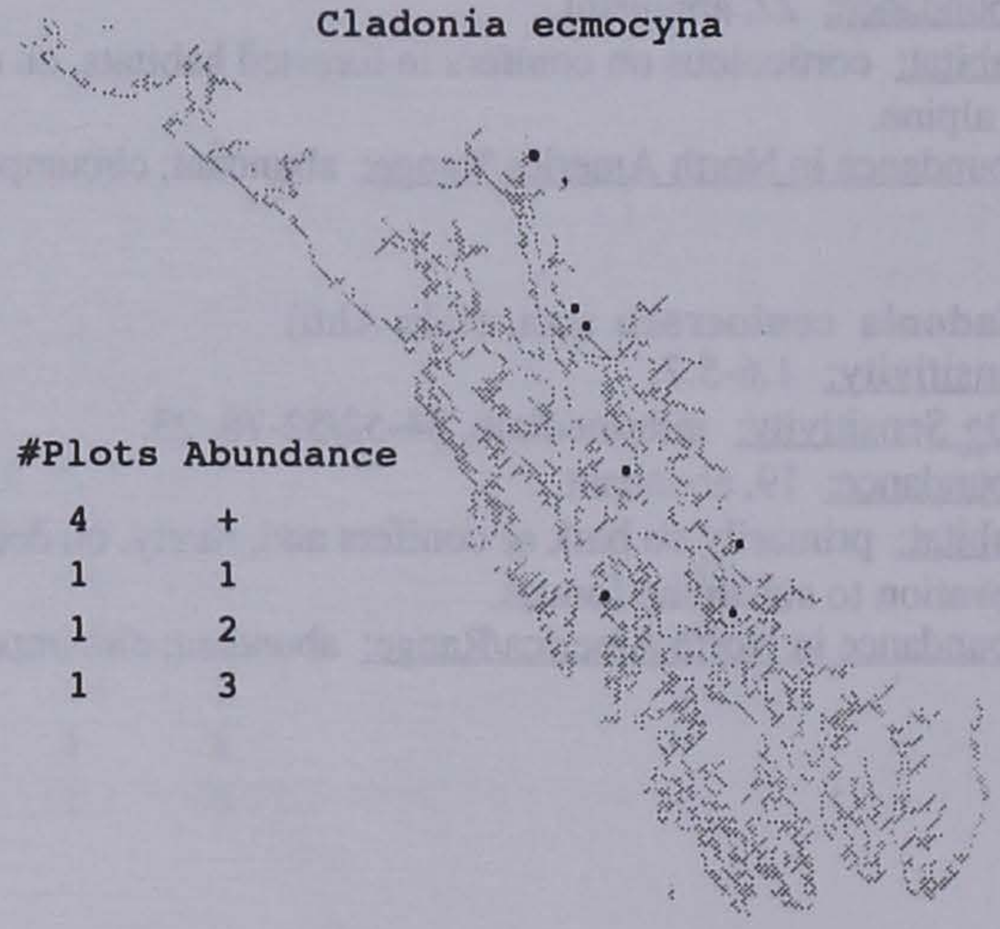
#Plots	Abundance
12	+
11	1
9	2
2	3
1	5

Cladonia deformis



#Plots	Abundance
6	+
2	1
3	2

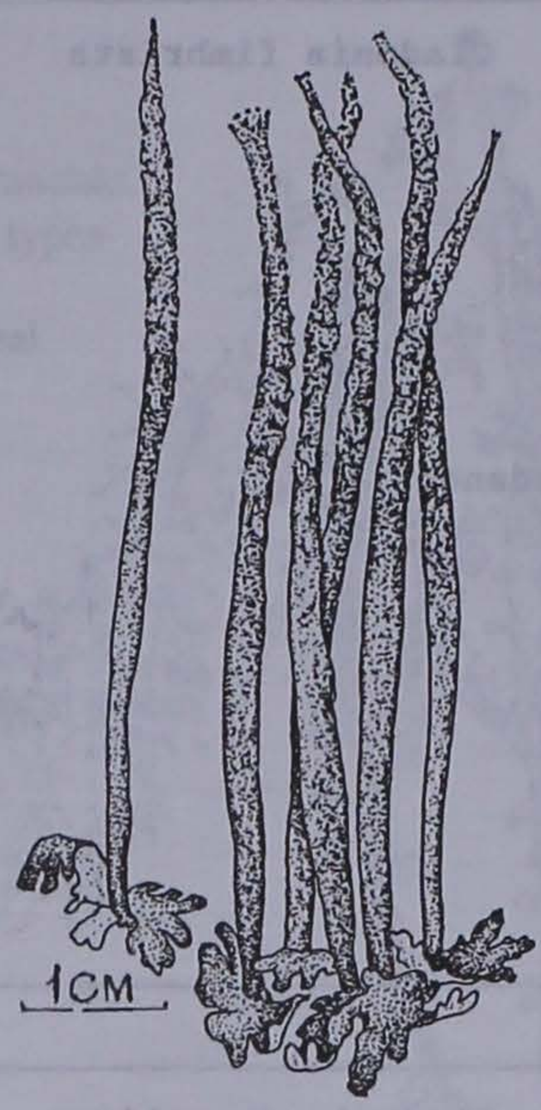
Cladonia ecmocyna



#Plots	Abundance
4	+
1	1
1	2
1	3

Cladonia cornuta (L.) Hoffm.
subsp. **cornuta**
subsp. **groenlandica** (Dahl) Ahti

Abundance: 65, abundant.
Habitat: on bark of conifers (except *Pinus*) and deciduous shrubs in many forest types. Also in humus with other lichens and mosses , sometimes in rock crevices, in open areas. Not found in subalpine or alpine habitats.
Abundance in North America/Range: abundant; circumpolar low arctic and boreal.



Cladonia cornuta

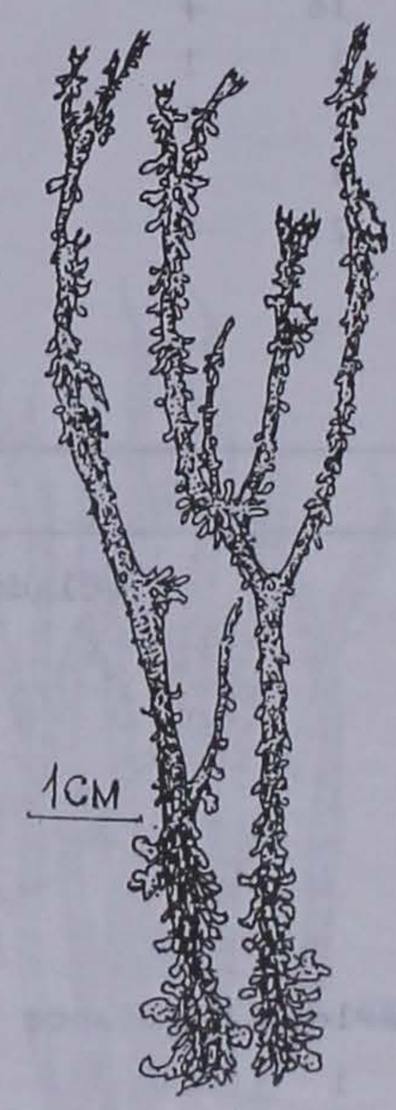
Cladonia crispata (Ach.) Flotow.
Abundance: 13, common.
Habitat: mainly on coniferous bark in shore pine and mixed conifer open forests. Also common over ground in humus with other lichens and mosses. Not found in the subalpine or alpine.
Abundance in North America/Range: abundant; circumpolar low arctic and boreal.

Cladonia cryptochlorophaea Asah.
Abundance: 2, infrequent.
Habitat: mainly on bark and lignum of conifers and deciduous shrubs in forested habitats. On soil humus in better drained habitats.
Abundance in North America/Range: common; amphi-Atlantic.

Cladonia cyanipes (Sommerf.) Nyl.
Abundance: 1, infrequent.
Habitat: on soil humus with other lichens and mosses on glacial moraine.
Abundance in North America/Range: common; circumpolar arctic-alpine.

Cladonia decorticata (Flörke) Sprengel
Abundance: 33, common.
Habitat: very widespread, corticolous and lignicolous on bases and sometimes lower branches of conifers, common on soil and even over rock. Most forest types from low elevation to alpine.
Abundance in North America/Range: infrequent; circumpolar low arctic and boreal.

Cladonia deformis (L.) Hoffm.
Abundance: 12, infrequent.
Habitat: on bark of conifers, also over rocks and soil humus from low elevation forests to the subalpine.
Abundance in North America/Range: abundant; circumpolar low arctic and boreal.



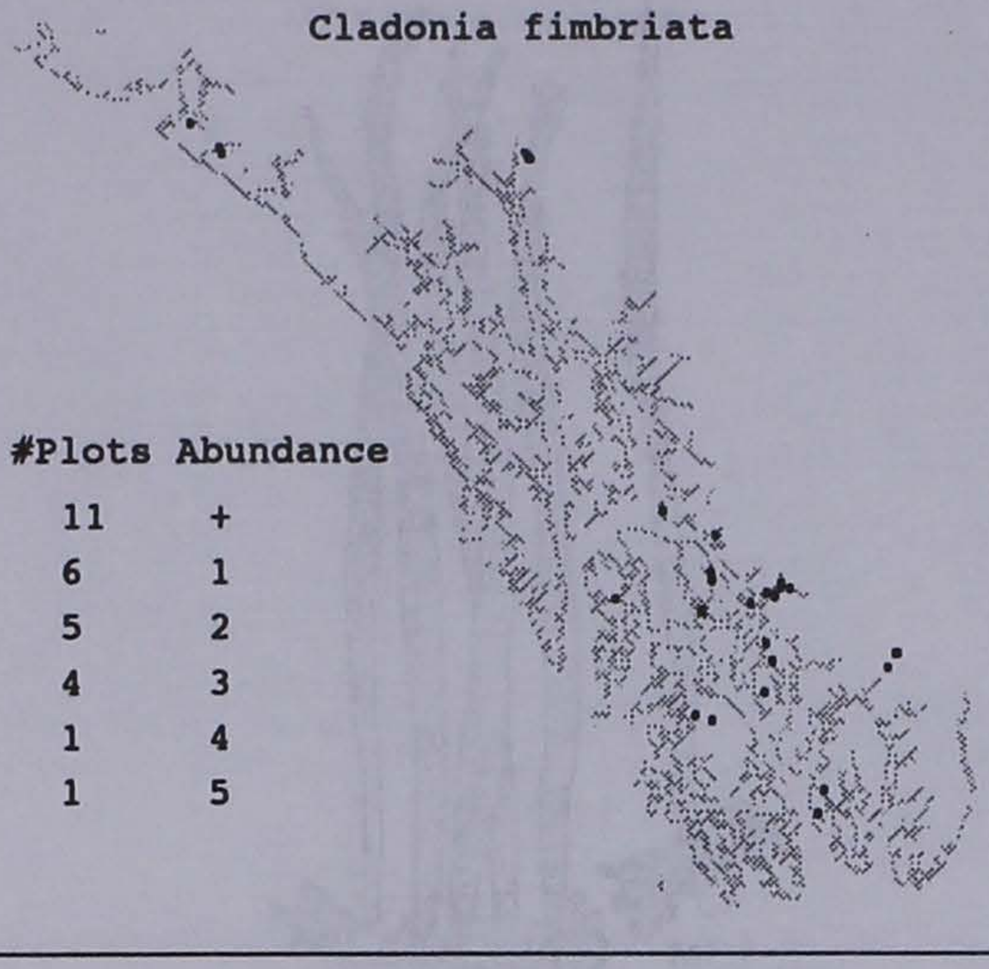
Cladonia decorticata

Cladonia ecmocyna Leighton
subsp. **ecmocyna**
subsp. **intermedia** (Robb.) Ahti

Abundance: 8, common.

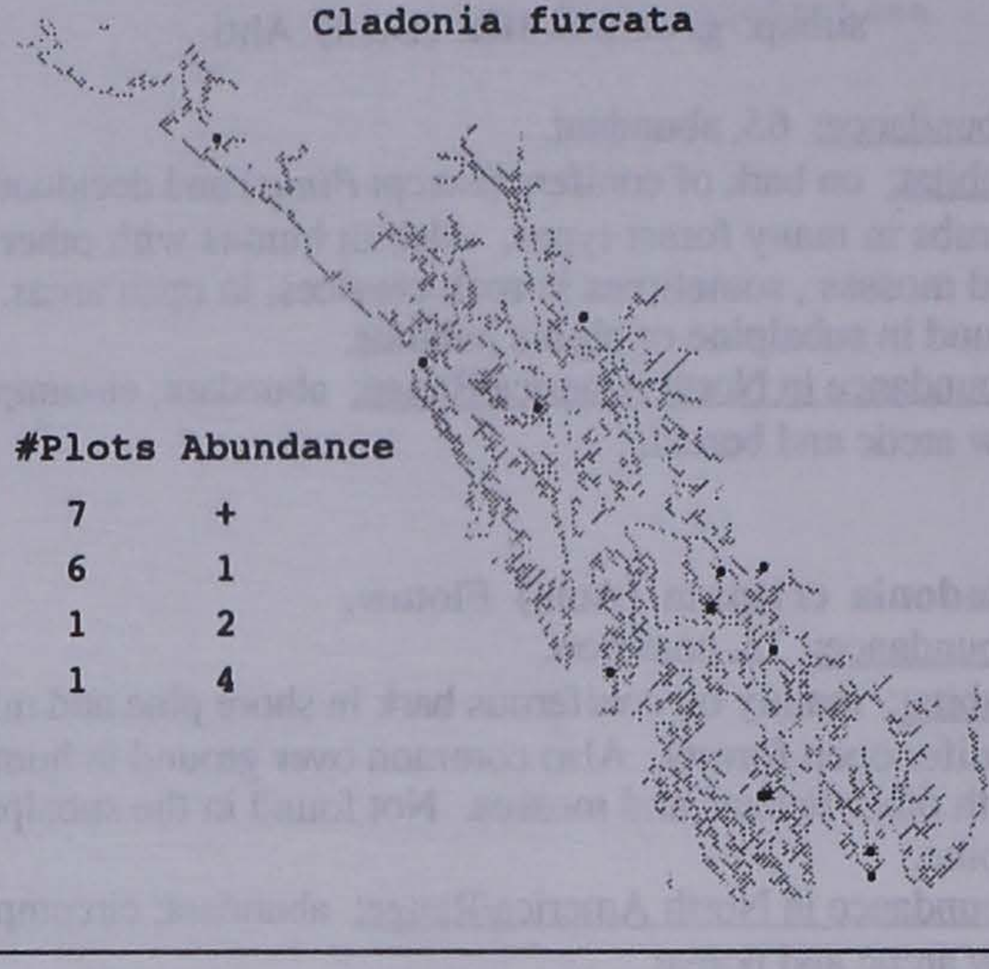
Habitat: in soil humus with other lichens and mosses. Primarily a subalpine and alpine species, also found at lower elevations at the termini of glaciers.
Abundance in North America/Range: common; circumpolar arctic-alpine.

Cladonia fimbriata



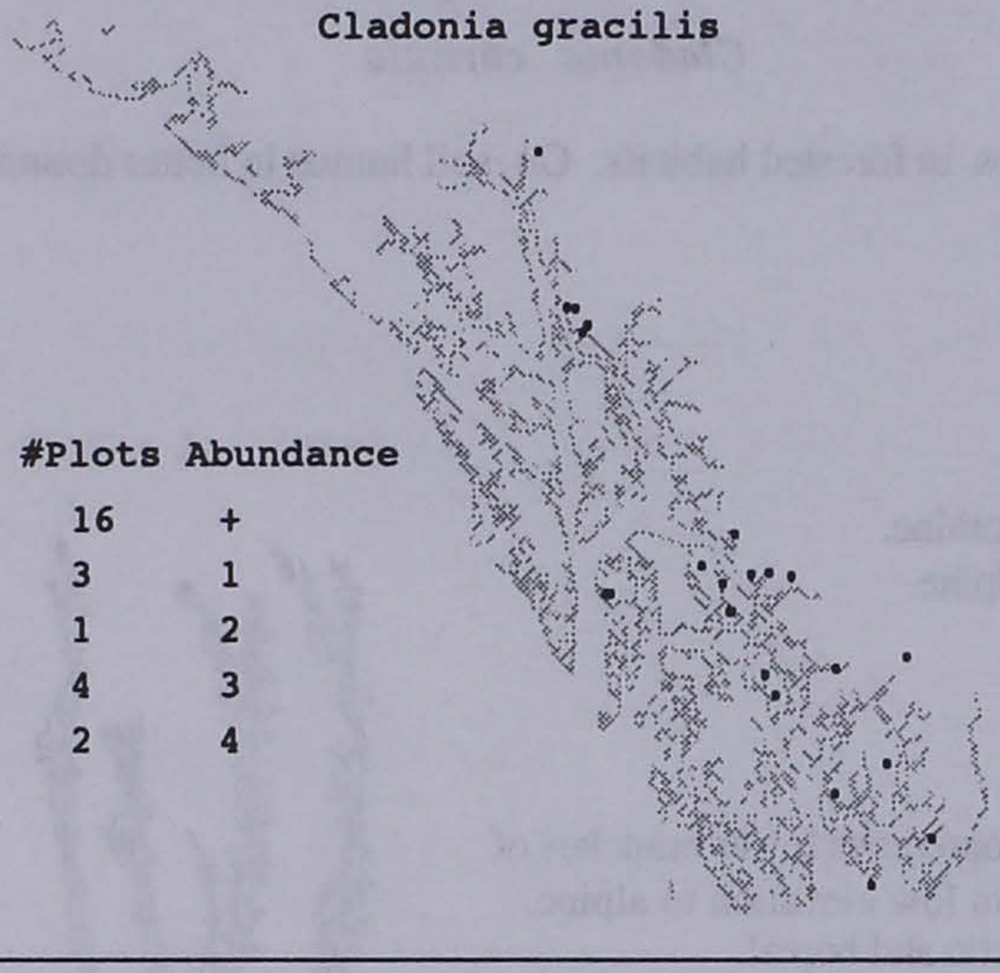
#Plots	Abundance
11	+
6	1
5	2
4	3
1	4
1	5

Cladonia furcata



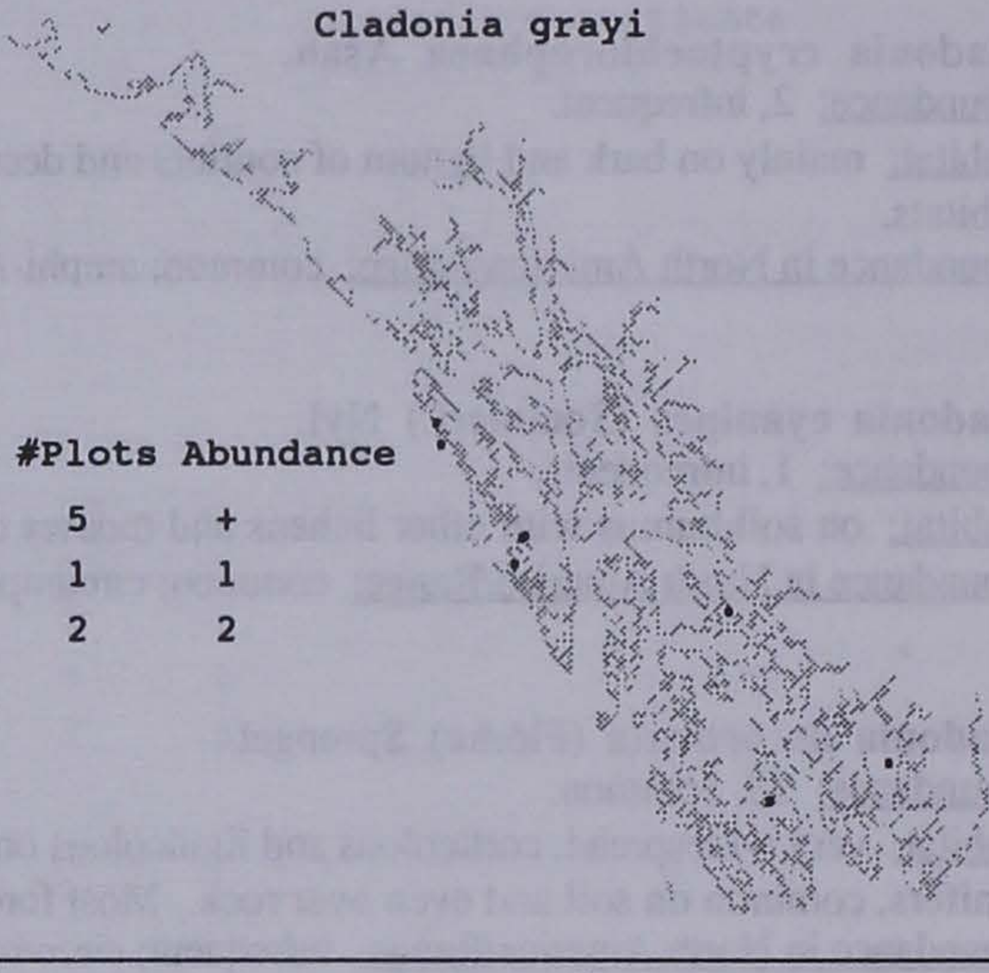
#Plots	Abundance
7	+
6	1
1	2
1	4

Cladonia gracilis



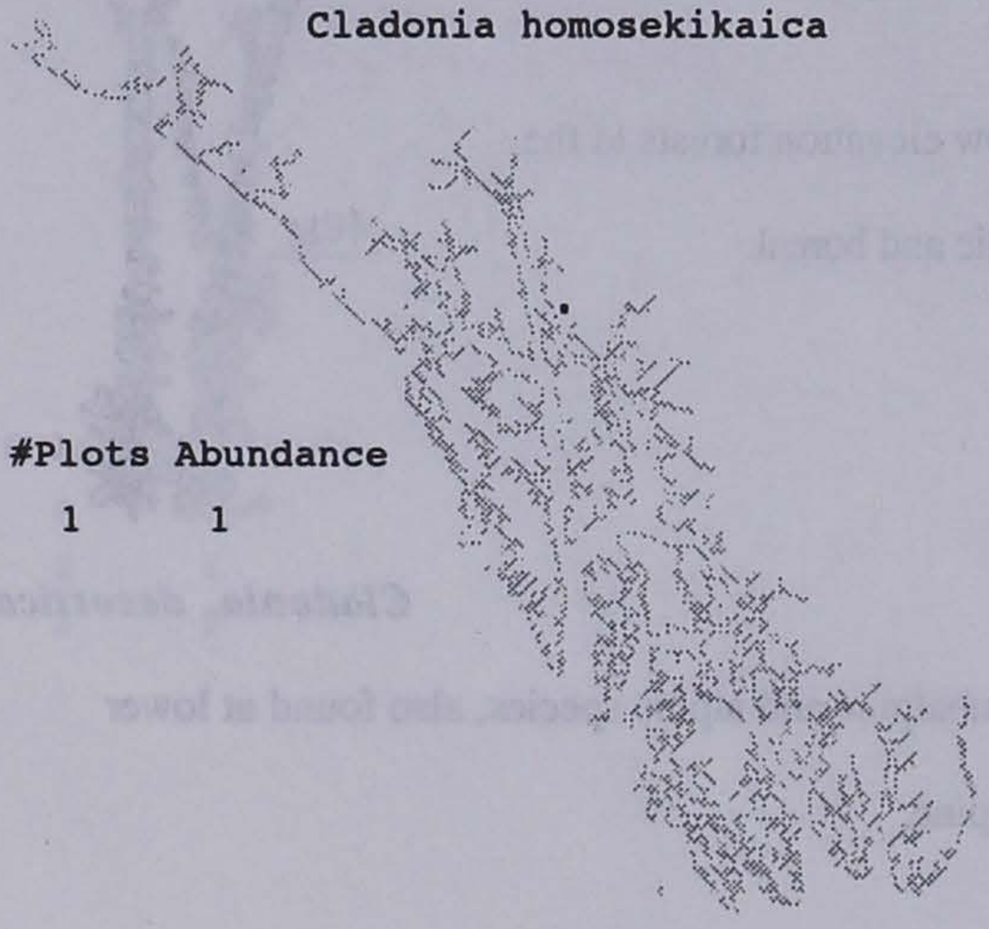
#Plots	Abundance
16	+
3	1
1	2
4	3
2	4

Cladonia grayi



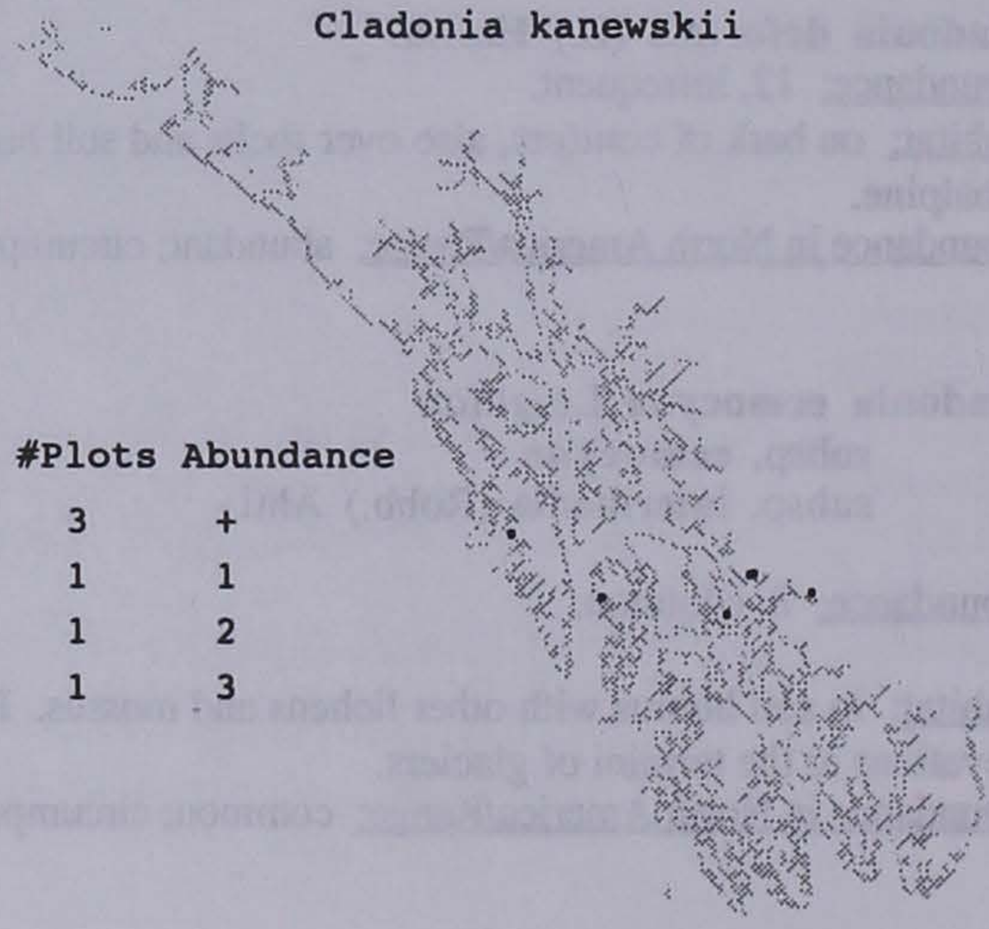
#Plots	Abundance
5	+
1	1
2	2

Cladonia homosekikaica



#Plots	Abundance
1	1

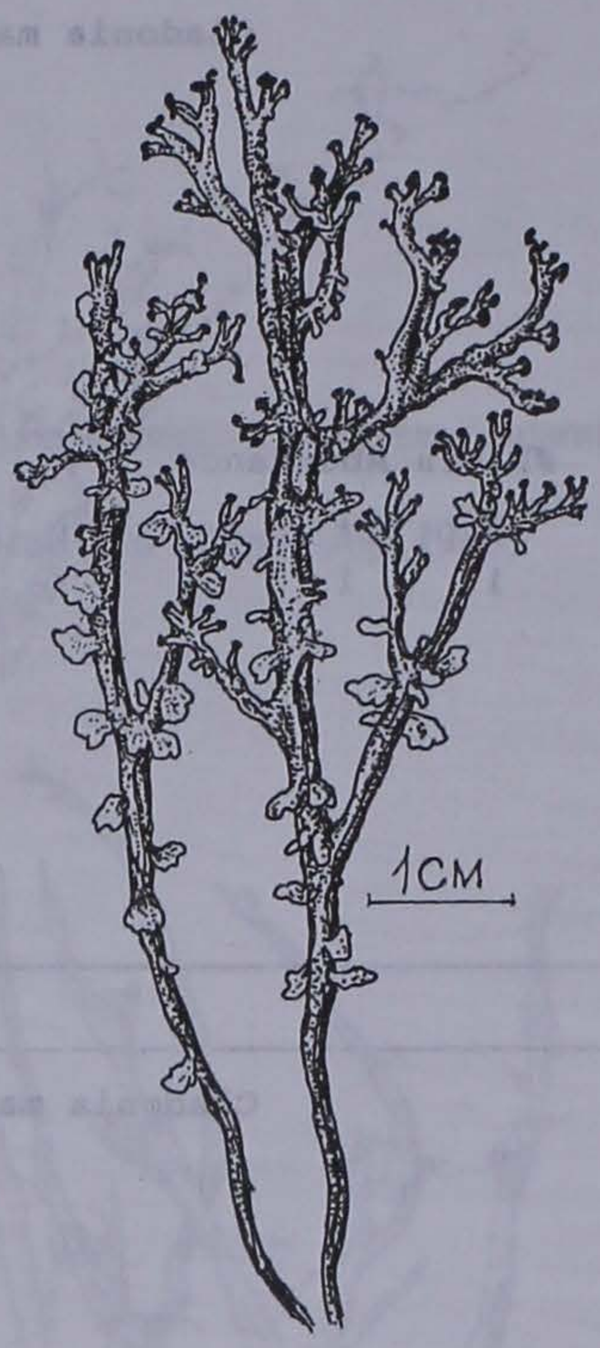
Cladonia kanewskii



#Plots	Abundance
3	+
1	1
1	2
1	3

Cladonia fimbriata (L.) Fr.
Sensitivity: 5.7-10.
SO_2 Sensitivity: sensitive-intermediate, 13/13-26.
Abundance: 29, abundant.
Habitat: on bark and lignum of conifers, usually on bases of trunks or lower branches. Also corticolous on deciduous shrubs and once found over rock. In most forest types below the subalpine.
Abundance in North America/Range: abundant; circumpolar low arctic and boreal.

Cladonia furcata (Huds.) Schrader
Abundance: 13, common.
Habitat: mainly on humus in low elevation open *Pinus contorta*, mixed conifer, spruce and hemlock forests. Also on bark of conifers (bases of trunks or lower branches).
Abundance in North America/Range: abundant; Europe, North and South America, Asia, Australia, New Zealand.



Cladonia furcata

Cladonia gracilis (L.) Wild.
subsp. **gracilis**
subsp. **turbinata** (Ach.) Ahti
subsp. **vulnerata** Ahti

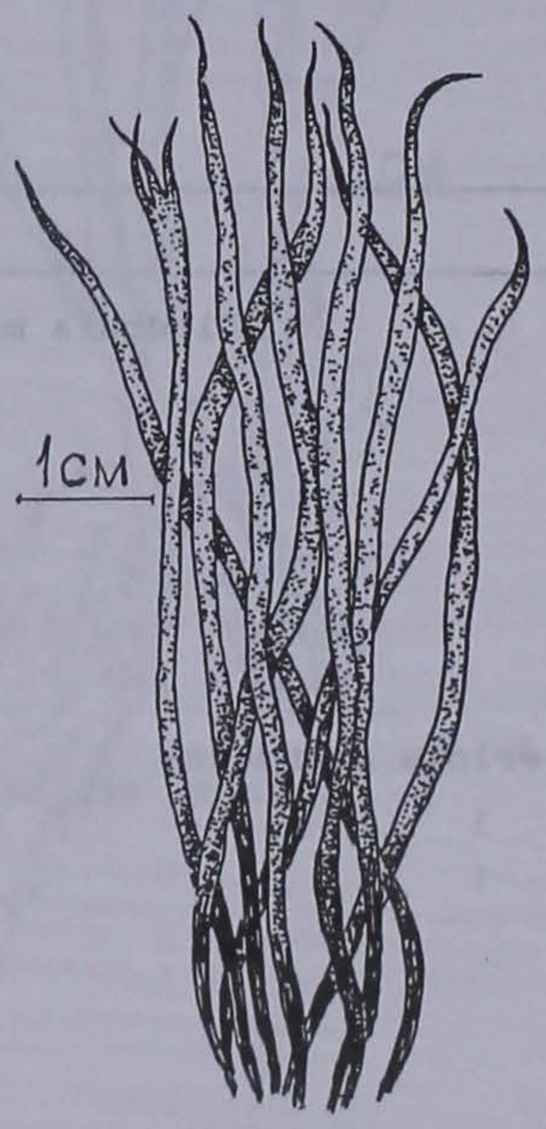
Abundance: 25, abundant.
Habitat: most common in open areas in better drained soils with other lichens and mosses; in peatlands and open forests, subalpine and alpine.
Abundance in North America/Range: abundant; circumpolar arctic-alpine.

Cladonia granulans Vainio
Abundance: 0, rare.
Habitat: expected on soil (Thomson, 1984).
Abundance in North America/Range: rare-- 5 records in North America noted by Thomson (Thomson, 1984), three from southeastern Alaska. Amphi-Beringian, also found in Japan and Kamchatka.
Notes: reported from Douglas Island, Harbor Mtn. near Sitka, and Saxon Village near Ketchikan (Krog, 1968).

Cladonia grayi Merr. ex Sandst.
Abundance: 8, infrequent.
Habitat: primarily in soil humus from low elevation to alpine.
Abundance in North America/Range: common; amphi-Atlantic.

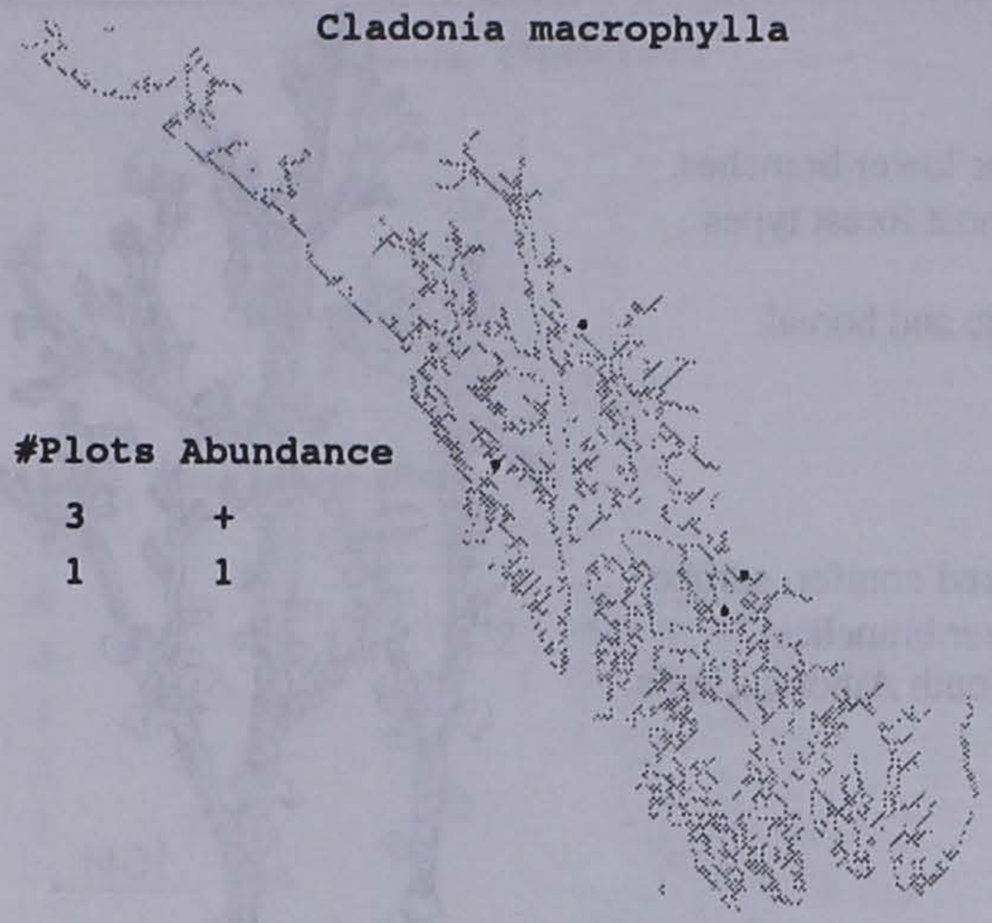
Cladonia homosekikaica Nuno
Abundance: 1, ?
Habitat: single collection from moss covered rock near glacier terminus.
Abundance in North America/Range: rare; Alaska and Illinois in North America (McKnight et al., 1987), Europe, Asia, and Australasia.

Cladonia humilis (With.) Laundon
Abundance: 0, rare
Habitat: on soil and rotting logs.
Abundance in North America/Range: rarely collected in western North America, probably circumpolar boreal and temperate with outliers into the tundra..
Notes: reported from the Juneau vicinity and north Kuiu Island (Thomson, 1984).



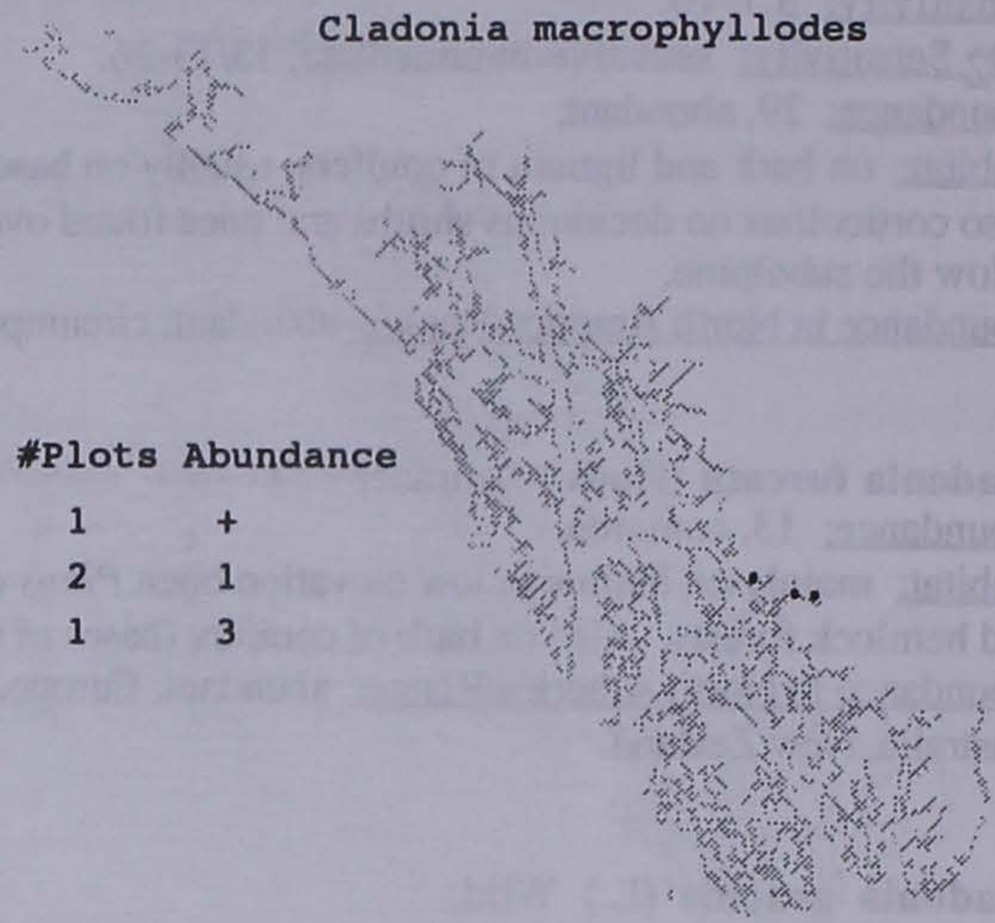
Cladonia gracilis

Cladonia macrophylla



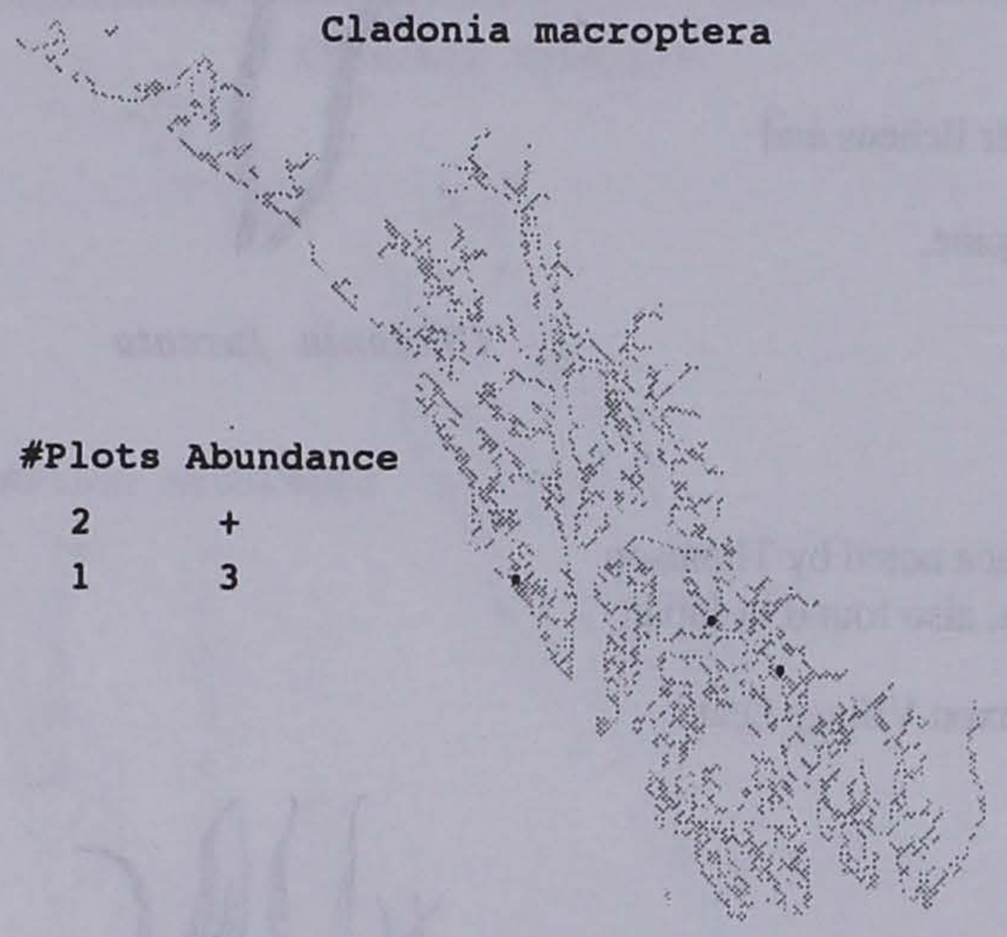
#Plots	Abundance
3	+
1	1

Cladonia macrophyllodes



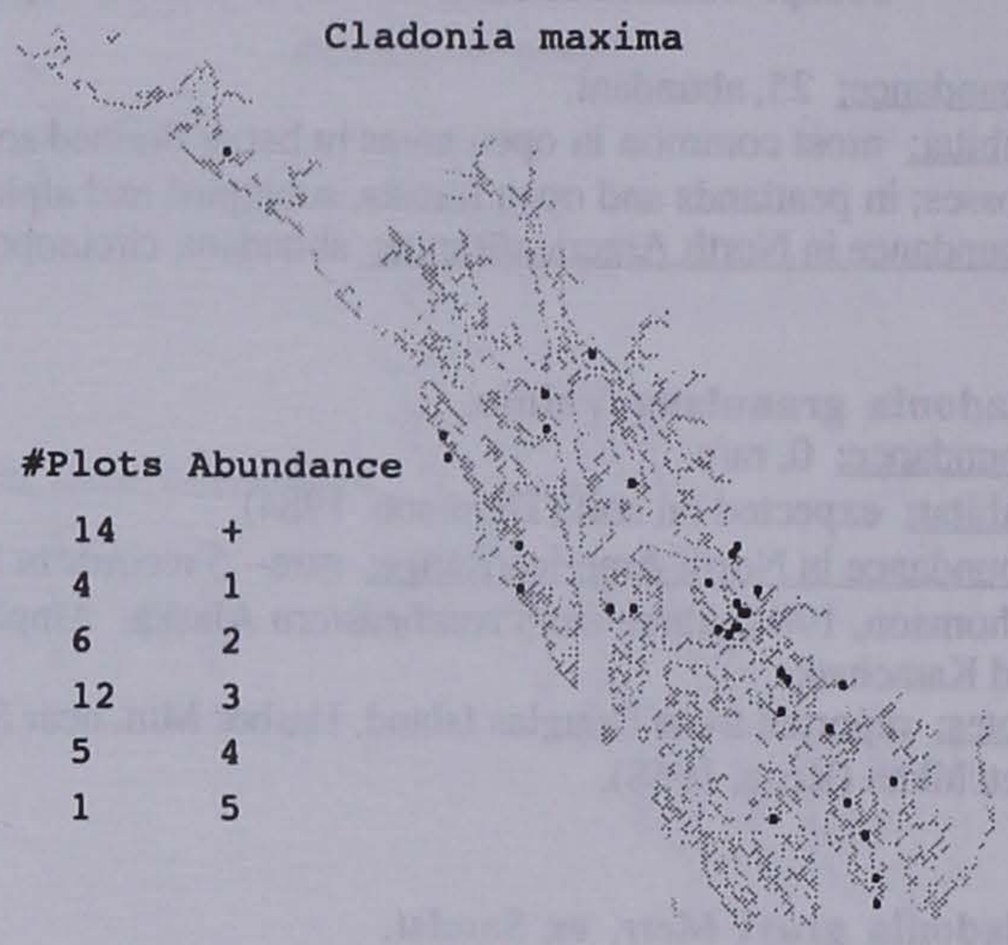
#Plots	Abundance
1	+
2	1
1	3

Cladonia macroptera



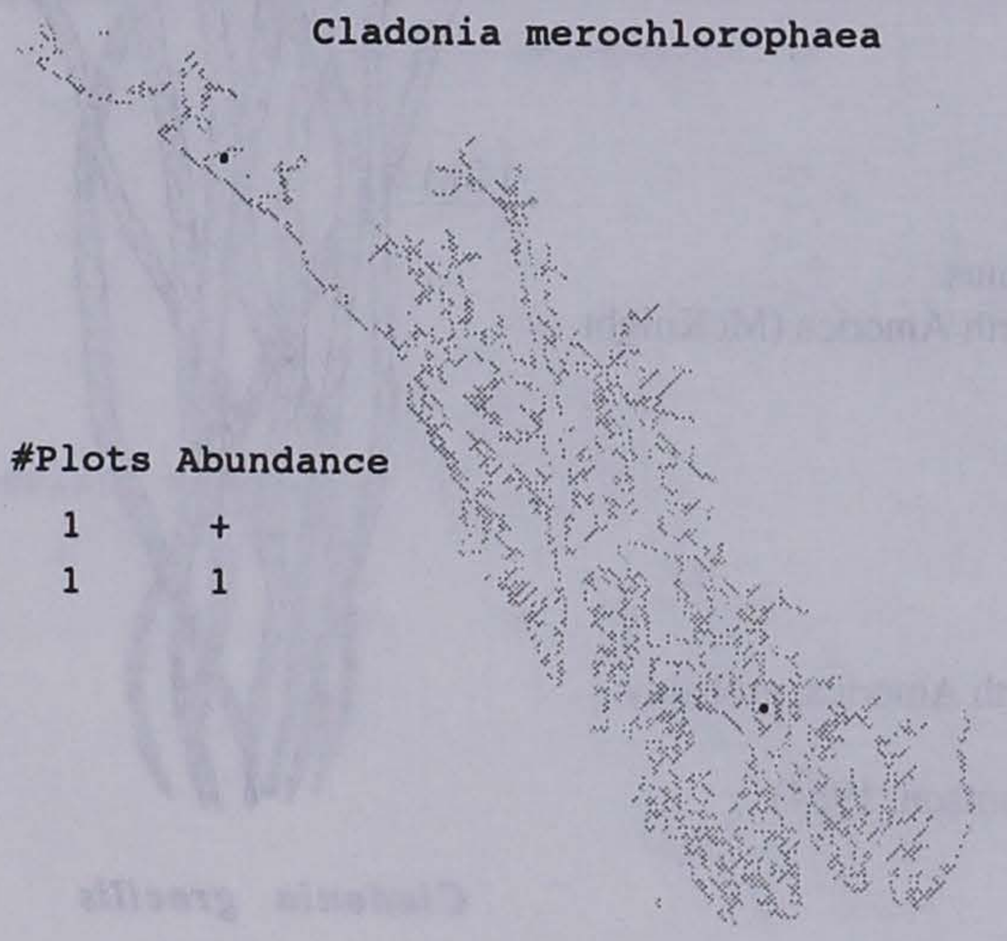
#Plots	Abundance
2	+
1	3

Cladonia maxima



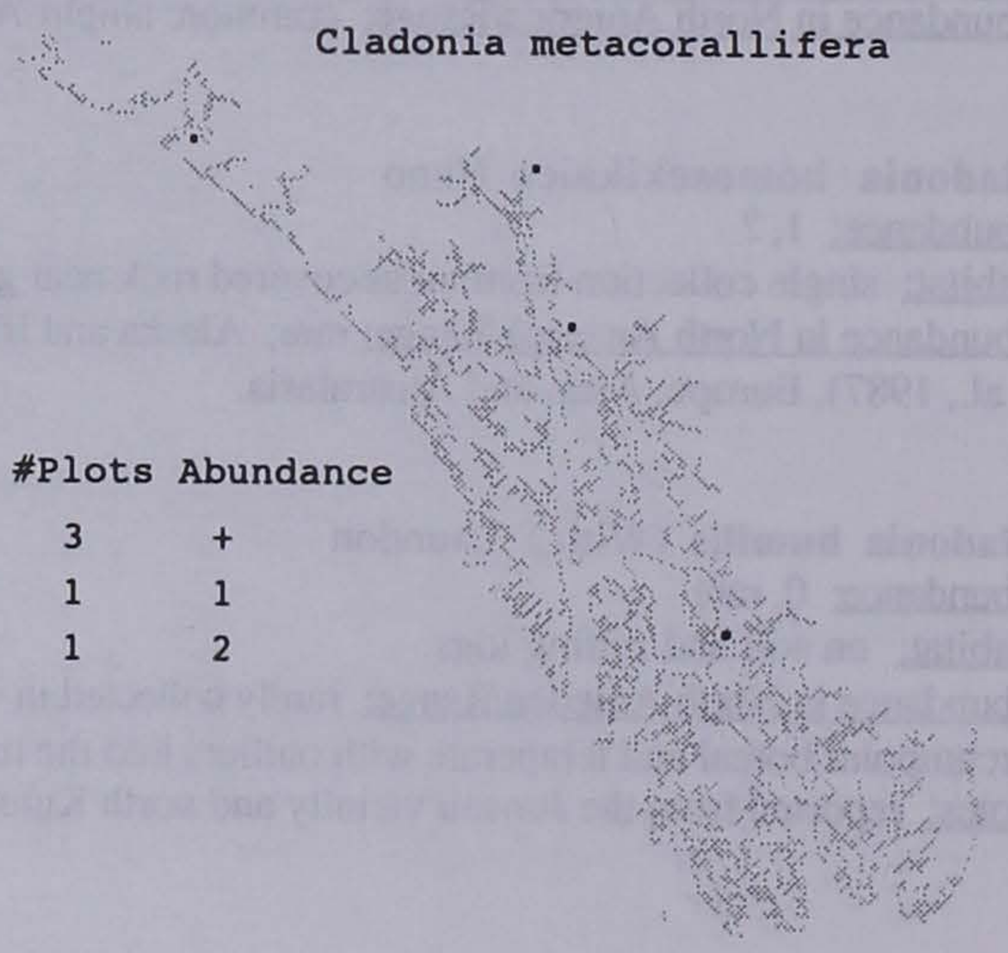
#Plots	Abundance
14	+
4	1
6	2
12	3
5	4
1	5

Cladonia merochlorophaea



#Plots	Abundance
1	+
1	1

Cladonia metacorallifera



#Plots	Abundance
3	+
1	1
1	2

Cladonia kanewskii Oxner
Abundance: 6, infrequent.
Habitat: on ground in alpine and subalpine.
Abundance in North America/Range: infrequent; amphi-Beringian.

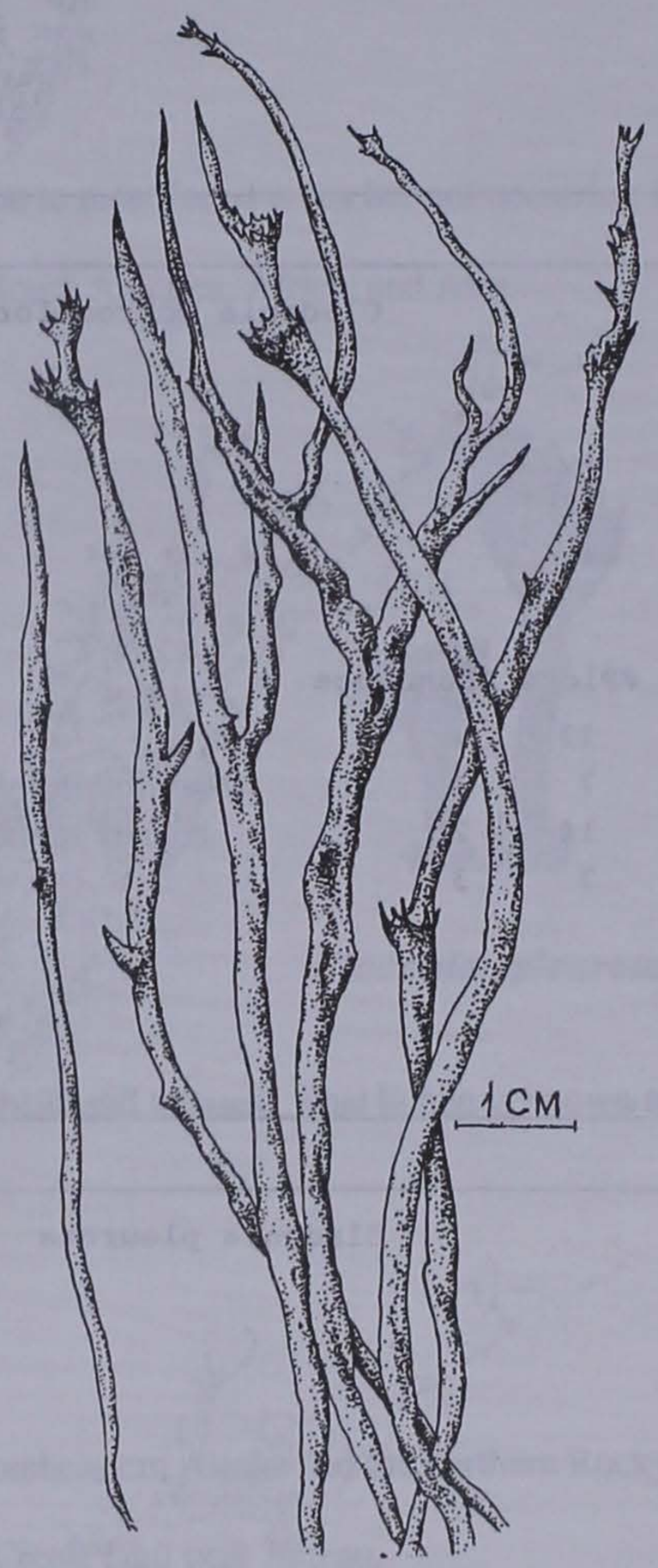
Cladonia macilenta Hoffm.
Abundance: 0, rare.
Habitat: coastal (Noble et al., 1987).
Abundance in North America/Range: common; Europe, North and South America, Africa, Asia, Australia, and New Zealand (Purvis et al., 1992).
Notes: reported from Loop Rd. in Juneau, Ward Lake near Ketchikan and the Indian River Trail near Sitka (Krog, 1968).

Cladonia macrophylla (Schaerer) Stenh.
Abundance: 2, infrequent.
Habitat: over rock and soil in alpine and subalpine.
Abundance in North America/Range: common; circumpolar arctic-alpine.

Cladonia macrophyllodes Nyl.
Abundance: 3, infrequent.
Habitat: wet mainland forests, alpine and subalpine.
Abundance in North America/Range: common; circumpolar arctic-alpine.

Cladonia macroptera Räsänen.
Abundance: 3, infrequent.
Habitat: in soil humus in open coniferous forests.
Abundance in North America/Range: coastal species. Primary range is Asia.
Notes: highly squamulose specimens of *C. scabriuscula* can be mistakenly identified as *C. macroptera* and all collections should be rechecked.

Cladonia maxima (Asah.) Ahti
Abundance: 42, abundant.
Habitat: in soil humus in raised hummocks in peatlands; from low elevation to alpine, where it can occur over rocks.
Abundance in North America/Range: common; circumpolar low arctic and boreal.



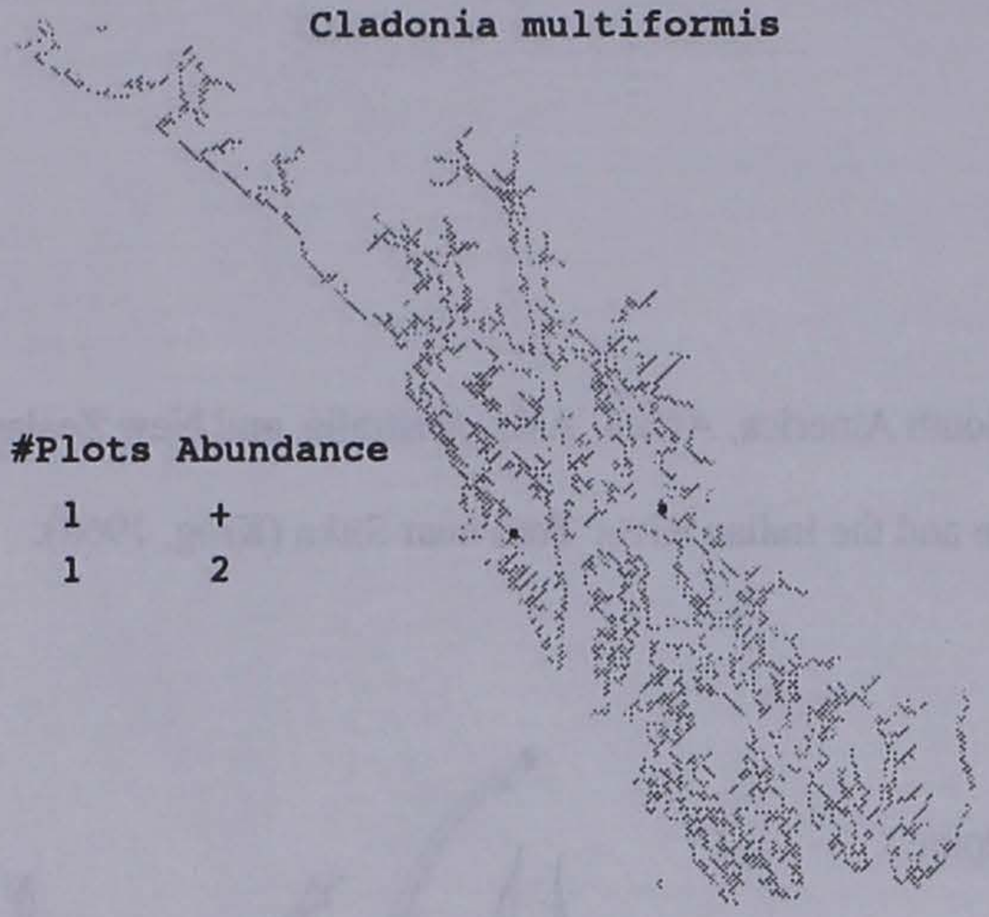
Cladonia maxima

Cladonia merochlorophaea Asah.
Abundance: 3, infrequent.
Habitat: forests species.
Abundance in North America/Range: common; circumpolar low arctic and boreal.

Cladonia metacorallifera Asah.
Abundance: 4, infrequent.
Habitat: on bark of *Picea* or *Tsuga* in open forests to subalpine, on rock or soil in non-forested areas and alpine.
Abundance in North America/Range: infrequent; amphi-Beringian.

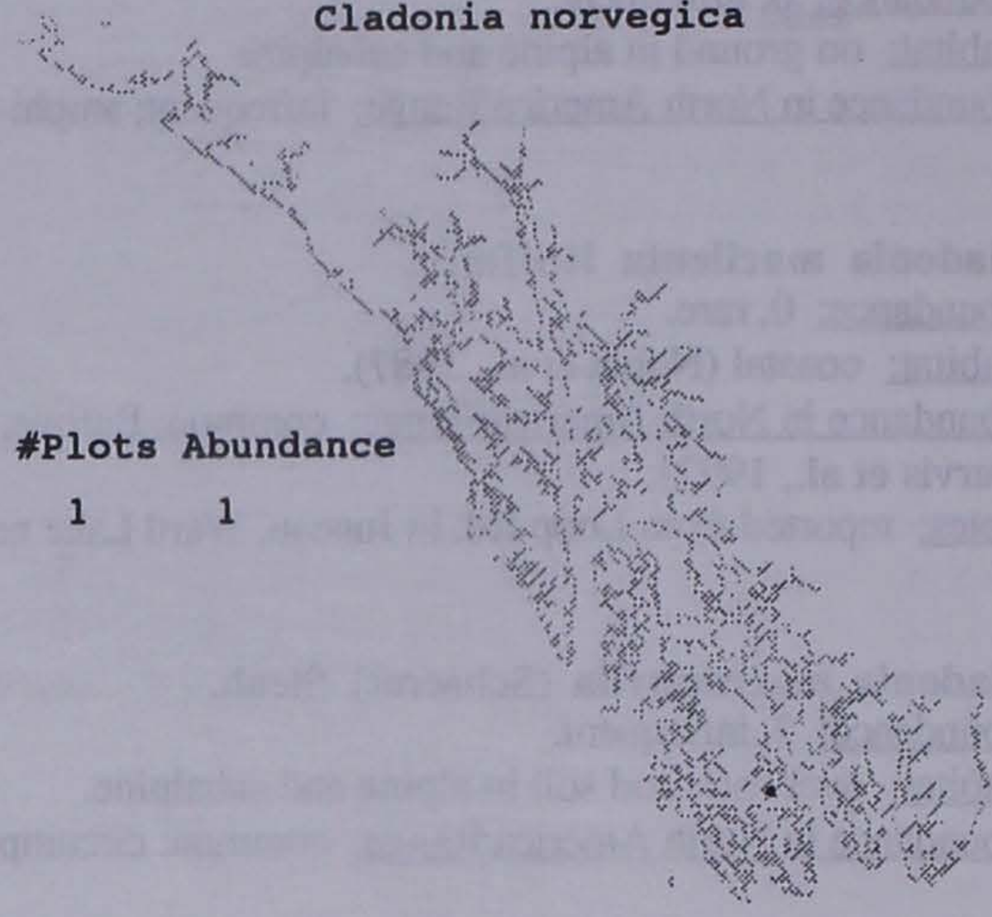
Cladonia multiformis G. K. Merr
Abundance: 2, infrequent.
Habitat: on coniferous bark in forests.
Abundance in North America/Range: common; circumpolar boreal.

Cladonia multiformis



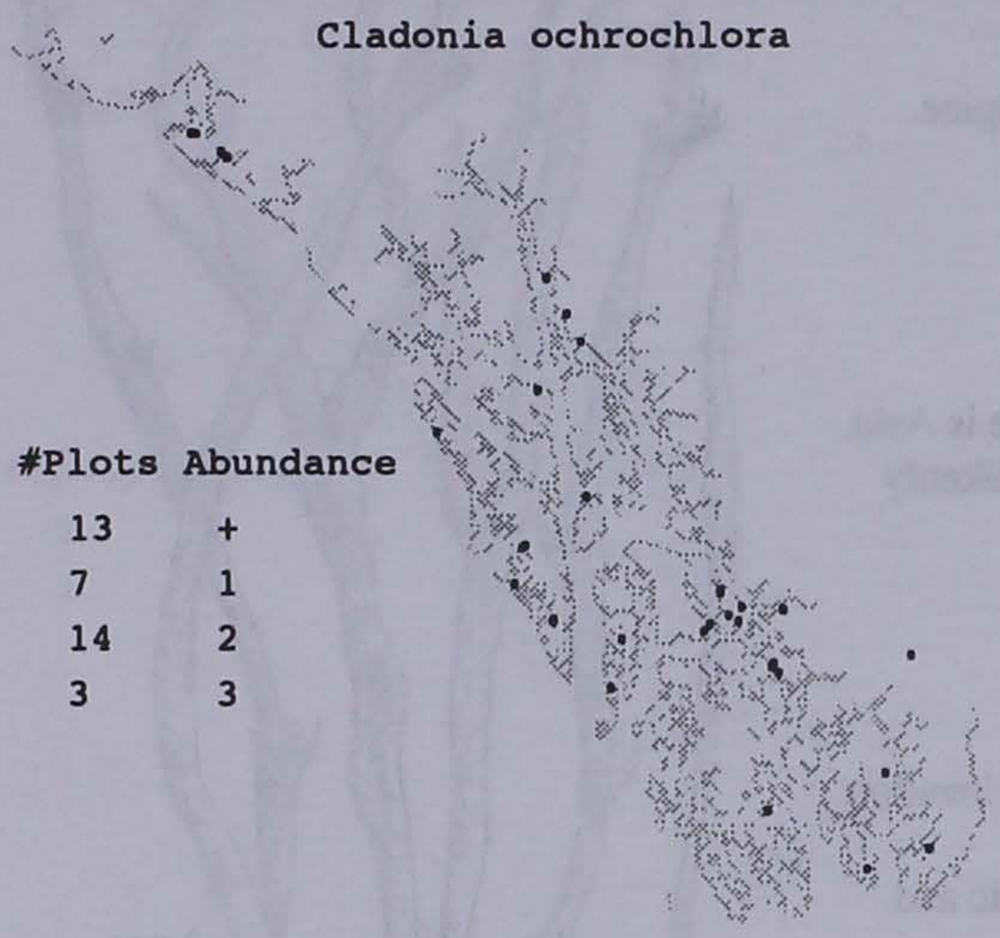
#Plots	Abundance
1	+
1	2

Cladonia norvegica



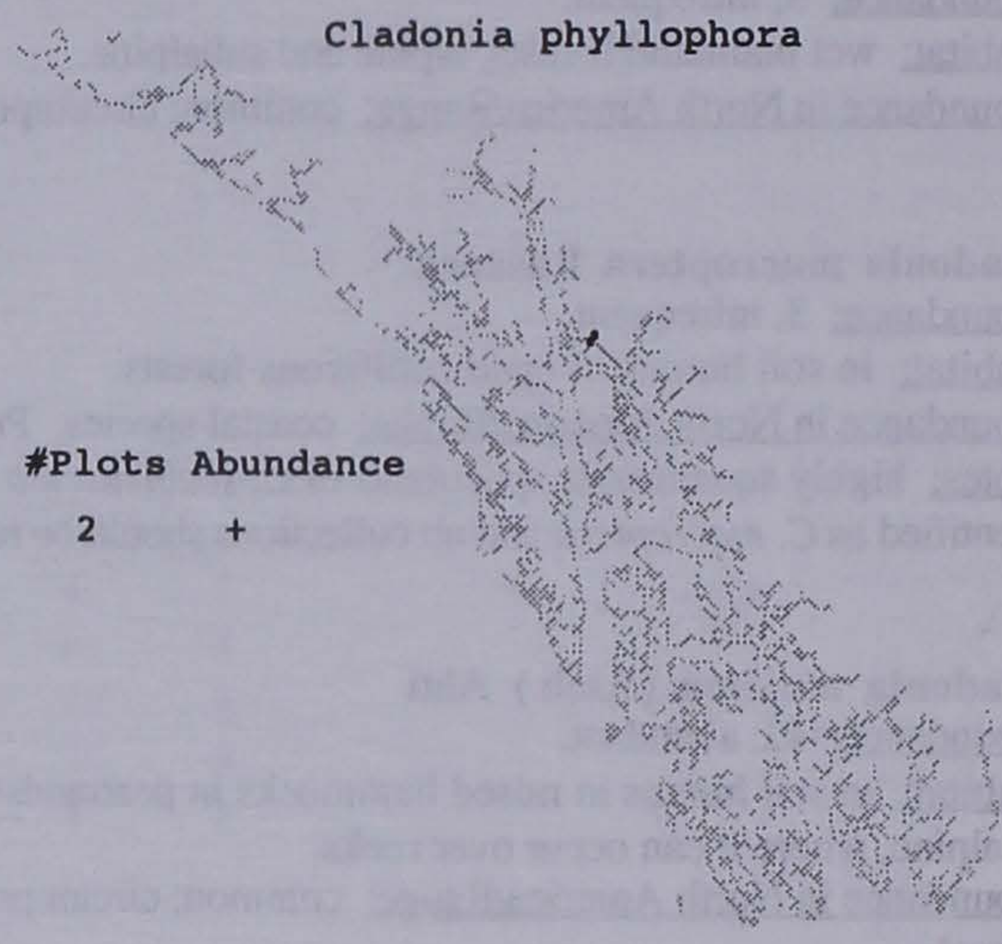
#Plots	Abundance
1	1

Cladonia ochrochlora



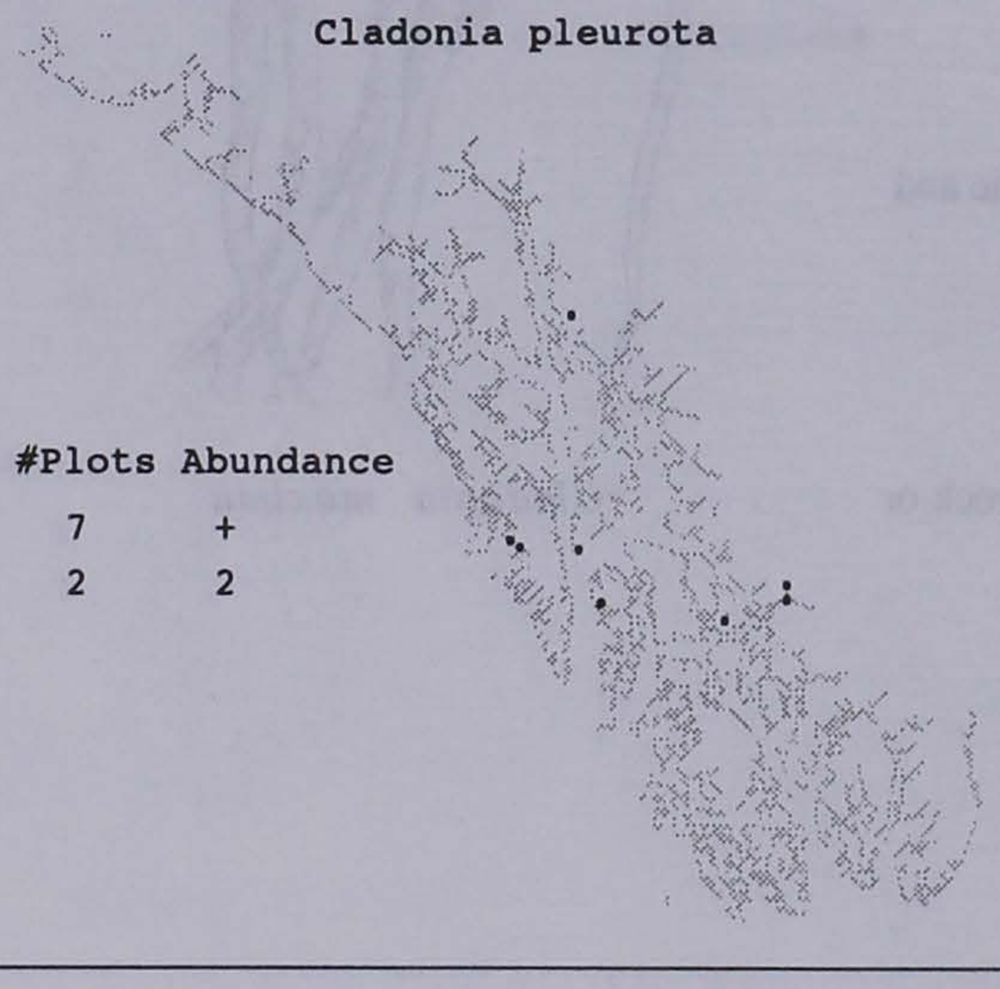
#Plots	Abundance
13	+
7	1
14	2
3	3

Cladonia phyllophora



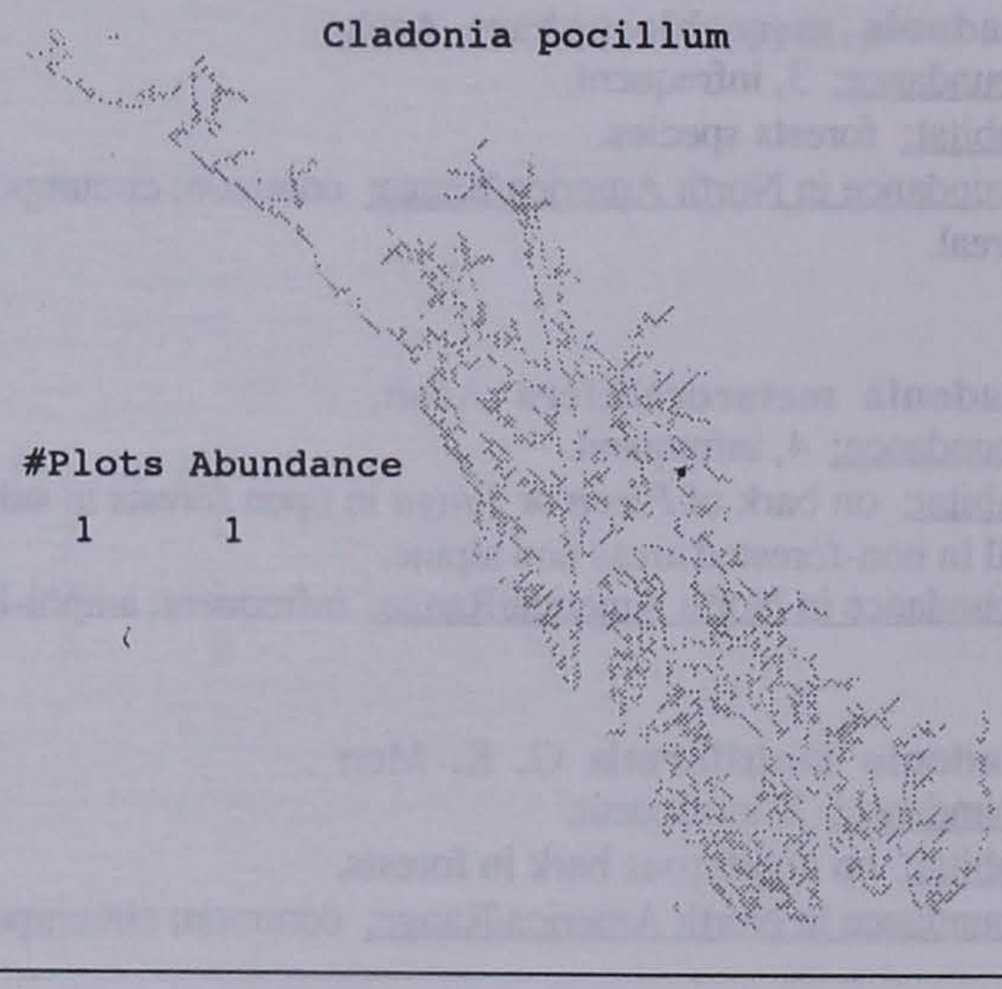
#Plots	Abundance
2	+

Cladonia pleurota



#Plots	Abundance
7	+
2	2

Cladonia pocillum



#Plots	Abundance
1	1

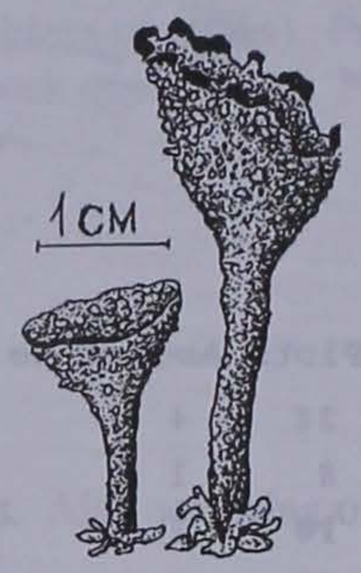
Cladonia nipponica Asah.
Abundance: 0, rare.
Habitat: over boulders and on soils (Thomson, 1984).
Abundance in North America/Range: rare; Beringian radiant, widely distributed in eastern Asia, in North America from Alaska and British Columbia .
Notes: previously reported near Mendenhall Lake and Mt. Roberts, Juneau (Krog, 1968), Harbor Mtn. in Sitka (Krog, 1968) and from the Ketchikan vicinity (Thomson, 1984). Similar to *C. boryi*.

Cladonia norvegica Tønsb. & Holien.
Abundance: 1, rare-infrequent.
Habitat: corticolous and lignicolous at the bases of conifers, occasionally on decaying logs. Humid coastal forests.
Abundance in North America/Range: recently described (Tønsberg & Holien 1984) but apparently infrequent in temperate to lower boreal regions. Rare, so far, in North America.
Notes: Also reported from Juneau, and the Indian River Trail near Sitka by Tønsberg (Tønsberg & Goward, 1992).

Cladonia ochrochlora Flörke
Abundance: 36, abundant.
Habitat: on bark and lignum of coniferous trees and deciduous shrubs. Common to most forest types but not occurring in the subalpine or alpine.
Abundance in North America/Range: common; throughout Europe, North and South America, Africa, and Asia.

Cladonia phyllophora Ehrh. ex Hoffm.
Abundance: 2, infrequent.
Habitat: on mossy rocks in the alpine.
Abundance in North America/Range: common; circumpolar arctic-alpine.

Cladonia pleurota (Flörke) Schaerer
Abundance: 10, common.
Habitat: primarily over soil or rocks, occasionally on bark. Occurring at low elevations on the mainland, notably the Stikine River; primarily an alpine and subalpine species on the islands.
Abundance in North America/Range: common; circumpolar arctic-alpine.



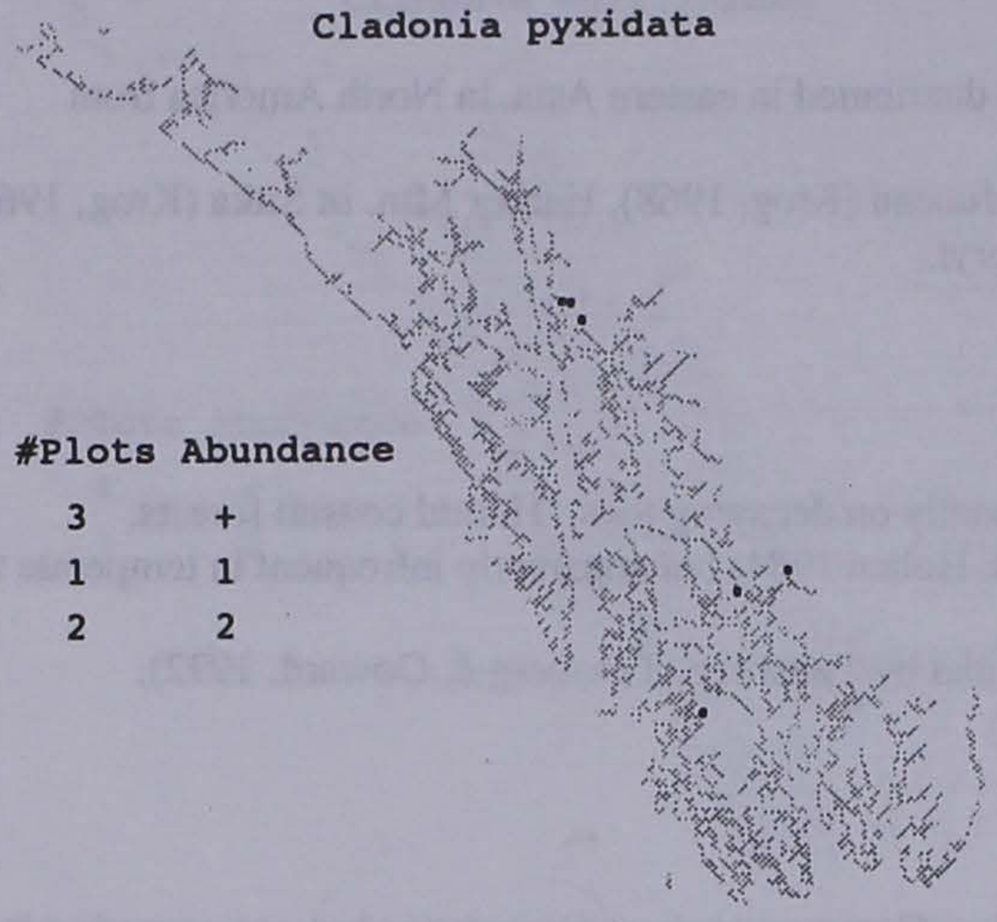
Cladonia pleurota

Cladonia pocillum (Ach.) O. Rich
Abundance: 1, infrequent.
Habitat: single collection from a large rock outcrop on the beach with other lichens and mosses. This lichen is known to be strongly calciferous (Thomson, 1967).
Abundance in North America/Range: common; circumpolar arctic-alpine.

Cladonia pseudomacilenta Asah.
Abundance: 0, rare-infrequent.
Habitat: on soil.
Abundance in North America/Range: rare; known from Japan, Kodiak Island, southeastern Alaska and the northern Rocky Mountains of British Columbia.
Notes: collected by R. O'Clair (University of Alaska, Southeast) along Sheep Creek Trail near Juneau.

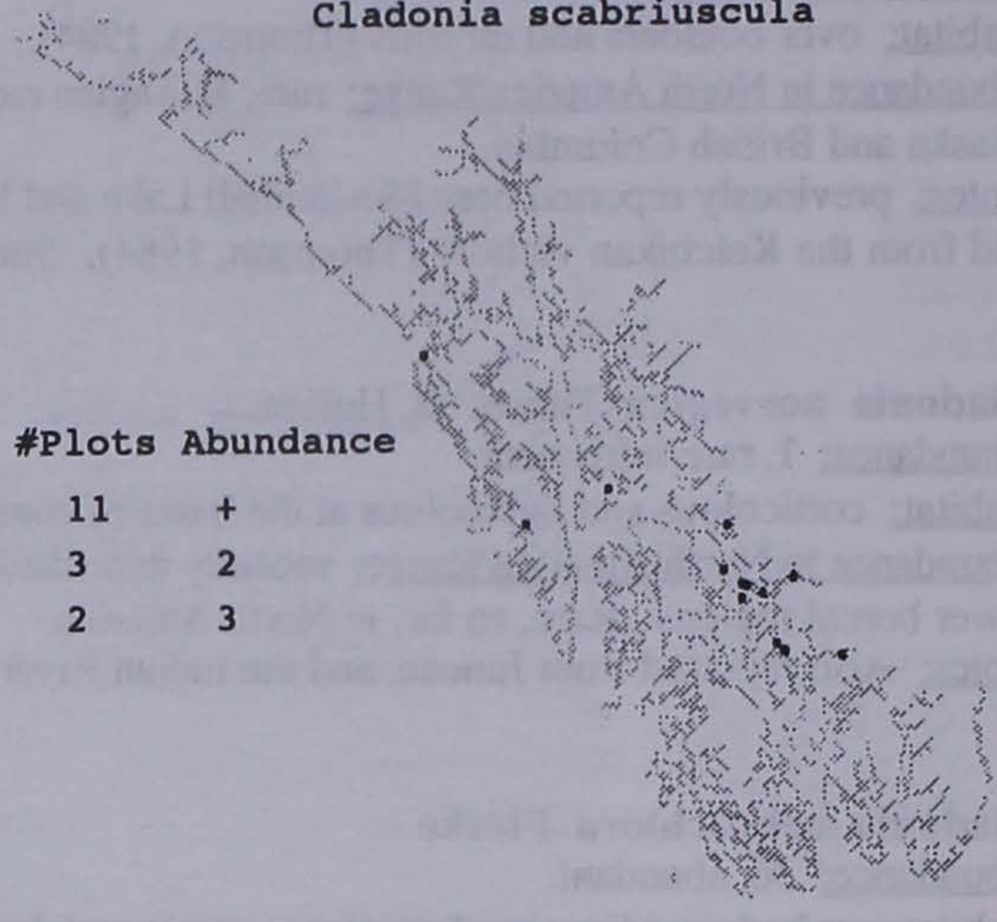
Cladonia pseudorangiformis Asah.
Abundance: 0, rare.
Habitat: subalpine and maritime peatlands (Thomson, 1984).
Abundance in North America/Range: infrequently collected; eastern Asia and North America (Alaska south to British Columbia and east across Canada, south to New England and north side of Lake Superior) .
Notes: collected by R. O'Clair (University of Alaska, Southeast). A chemical variant of *C. furcata* lacking protocetraric acid and containing atranorin, merochlorophaeic and psoromic acids (Hale, 1979) and, for this reason, possibly undercollected .

Cladonia pyxidata



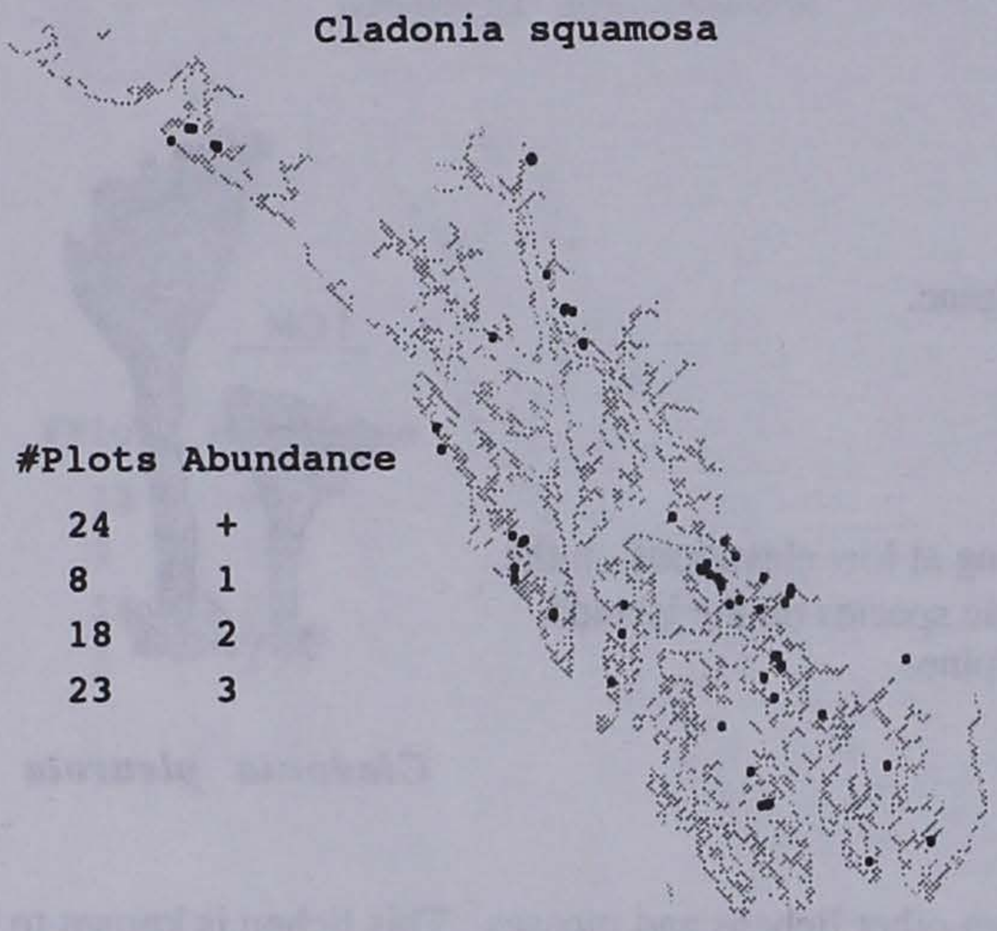
#Plots	Abundance
3	+
1	1
2	2

Cladonia scabriuscula



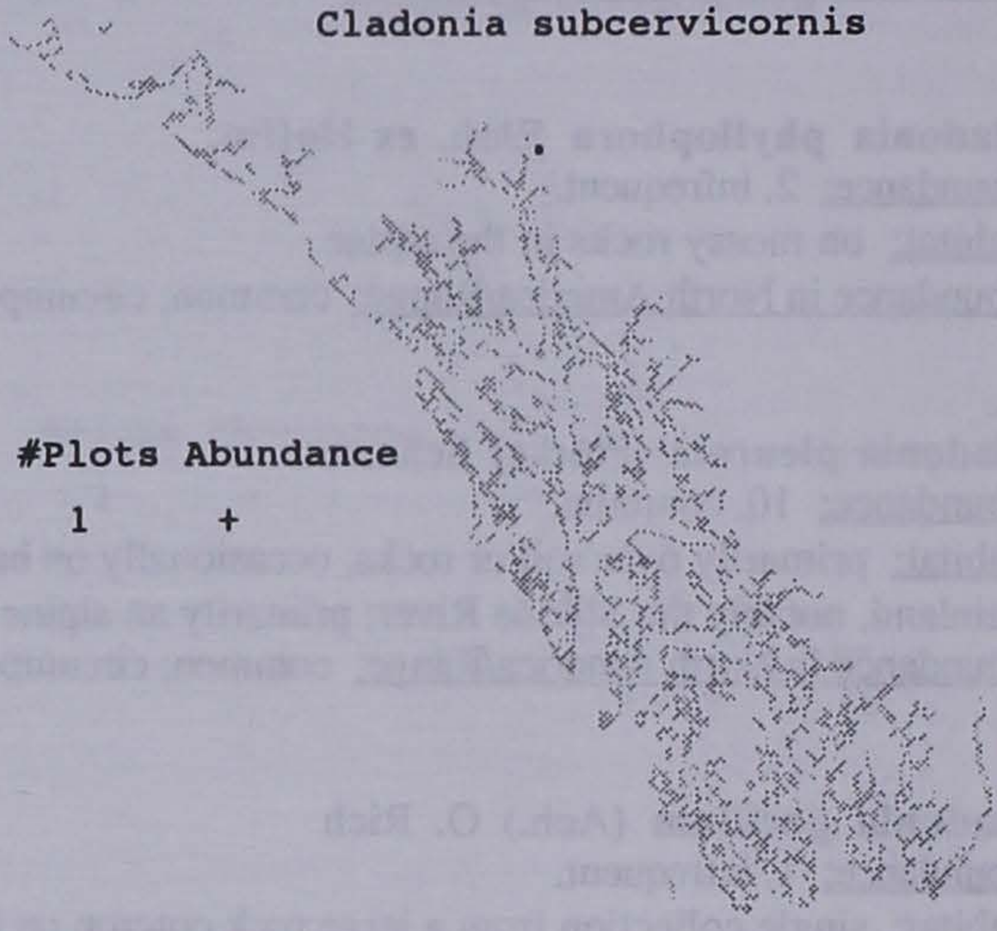
#Plots	Abundance
11	+
3	2
2	3

Cladonia squamosa



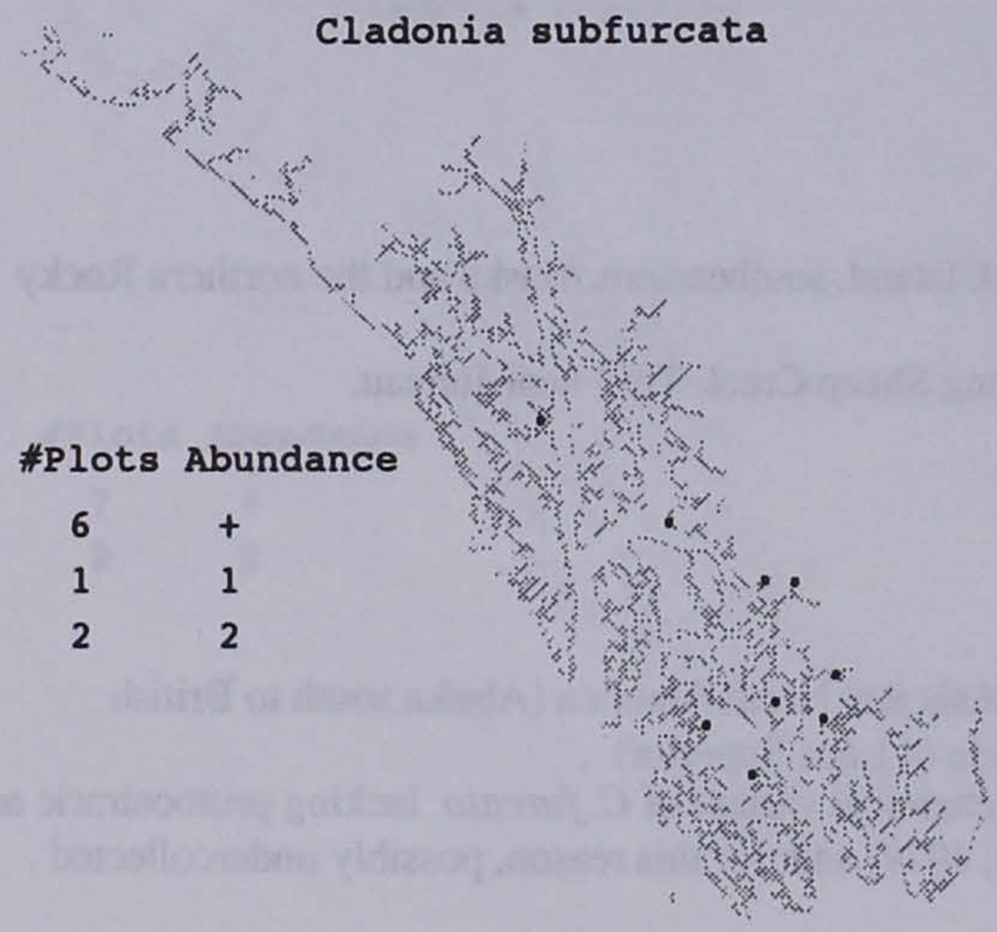
#Plots	Abundance
24	+
8	1
18	2
23	3

Cladonia subcervicornis



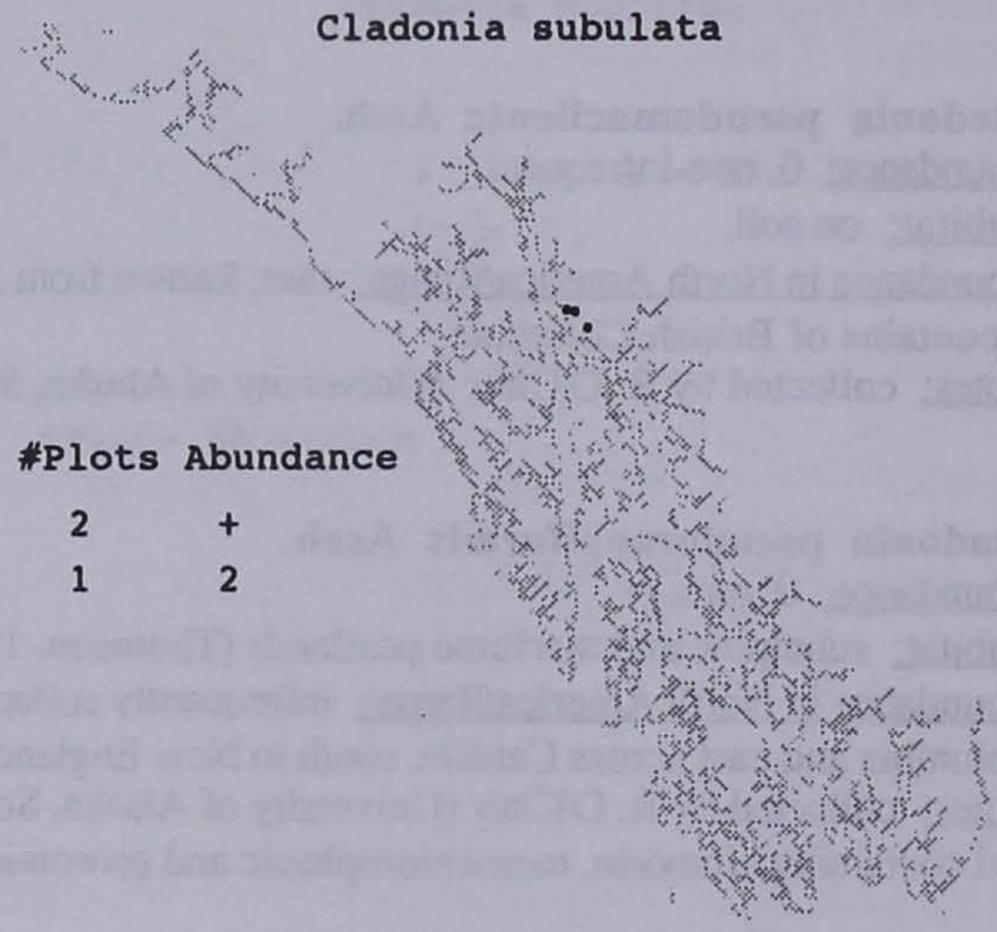
#Plots	Abundance
1	+

Cladonia subfurcata



#Plots	Abundance
6	+
1	1
2	2

Cladonia subulata



#Plots	Abundance
2	+
1	2

Cladonia pyxidata (L.) Hoffm.
Abundance: 7, infrequent.
Habitat: primarily on soil or rocks, occasionally on lower branches or bases of conifer trunks. In forested and open habitats. Not found, so far, in subalpine or alpine elevations.
Abundance in North America/Range: abundant; circumpolar arctic-alpine.

Cladonia ramulosa (With.) Laundon
Abundance: 1, rare ?
Habitat: grows on soil, tree bases and rotting wood (Thomson, 1984).
Abundance in North America/Range: main range is in temperate regions (where it is almost cosmopolitan) but extending to arctic boundaries. Abundance and distribution not well defined in North America.
See distribution map under its former name, **Cladonia anomaea.**

Cladonia rei Schaerer
Abundance: 0, infrequent?
Habitat: distribution and habit poorly known in this area
Abundance in North America/Range: common; Europe, North America, East Africa, Asia, and Australia.
Notes: reported near Mendenhall Lake, Juneau (Krog, 1968).

Cladonia scabriuscula (Del. **in** Duby) Nyl.
Abundance: 14, common.
Habitat: primarily on the ground, also over rock and on bark of conifers (low branches, crotches and bases of trunks). Prefers intermediate conditions common to mixed conifer communities and hemlock/cedar or mountain hemlock open forests. Not found in subalpine or alpine or in sunny *Pinus contorta* peatlands or deep hemlock and spruce forests.
Abundance in North America/Range: common; circumpolar boreal.

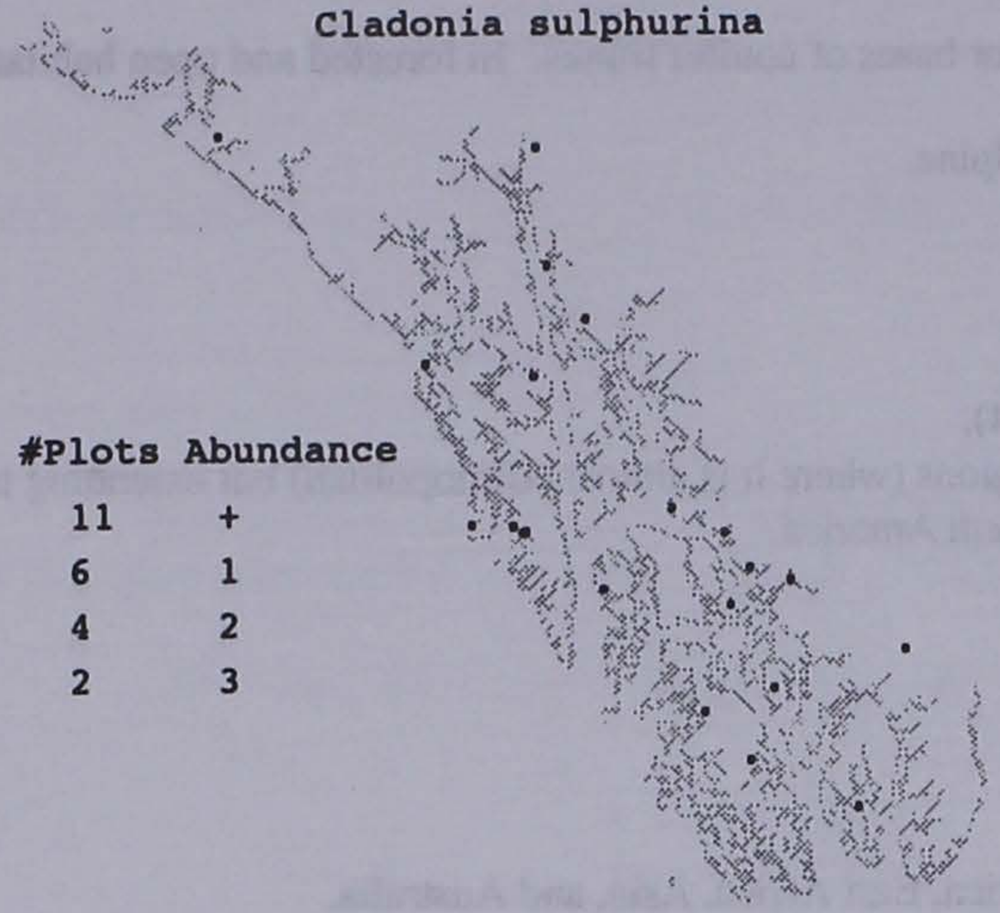
Cladonia squamosa (Scop.) Hoffm.
Sensitivity: 4.5-5.7.
Abundance: 72, abundant.
Habitat: on bark and lignum of conifers, where it grows on lower branches, crotches and trunk bases. Also occurring over soil and rocks. Common to all coniferous forest habitats except not extending to subalpine or alpine.
Abundance in North America/Range: common; circumpolar low arctic and boreal.

Cladonia stricta (Nyl.) Nyl.
Abundance: 2, infrequent.
Habitat: only found along the Stikine River where it occurred on bark of *Tsuga heterophylla* and *T. mertensiana.* Alpine and subalpine in British Columbia.
Abundance in North America/Range: common; circumpolar arctic-alpine.

Cladonia subcervicornis (Vainio) Kernst.
Abundance: 1,?
Habitat: on humus. Can also occur on rock (Thomson, 1984).
Abundance in North America/Range: arctic-alpine in western North America and Europe.

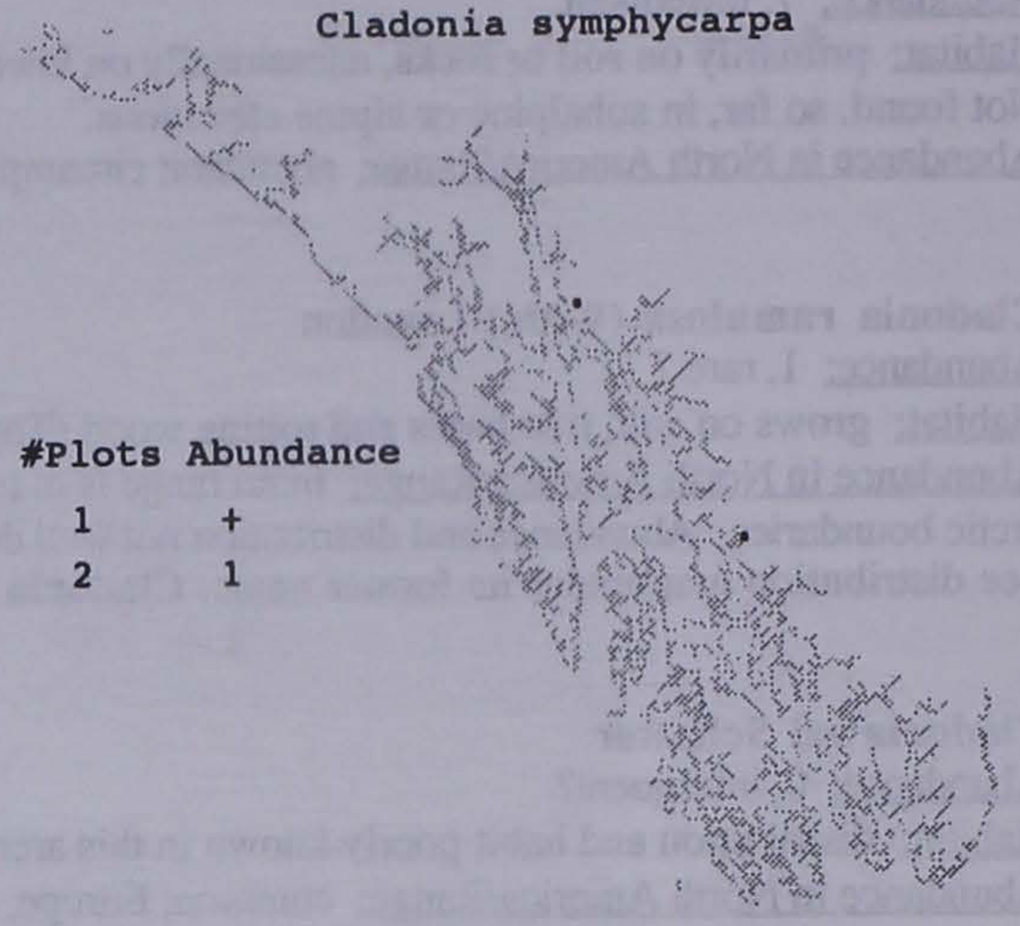
Cladonia subfurcata (Nyl.) Arnold
Abundance: 9, common.
Habitat: common in low elevation peatlands in the soil humus with other lichens and mosses. Also occurring over rock in subalpine, alpine and low elevation glacial termini.
Abundance in North America/Range: common; circumpolar arctic-alpine.

Cladonia sulphurina



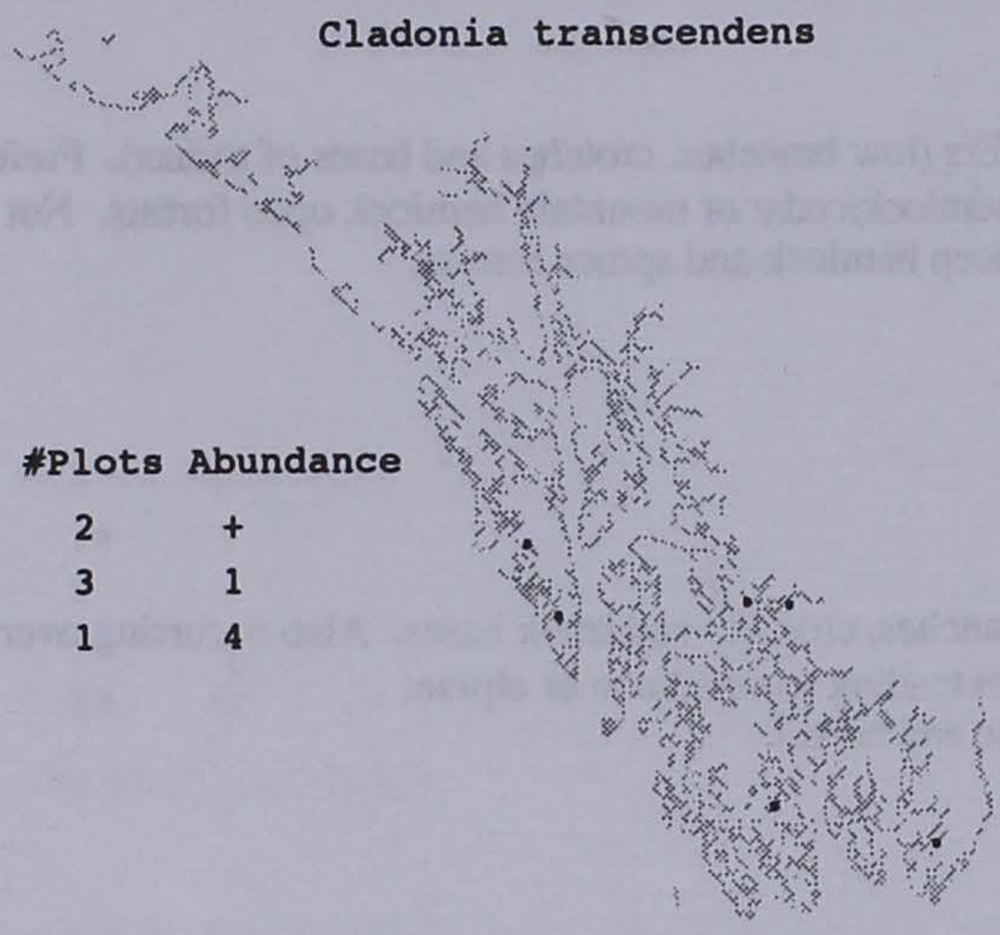
#Plots	Abundance
11	+
6	1
4	2
2	3

Cladonia symphycarpa



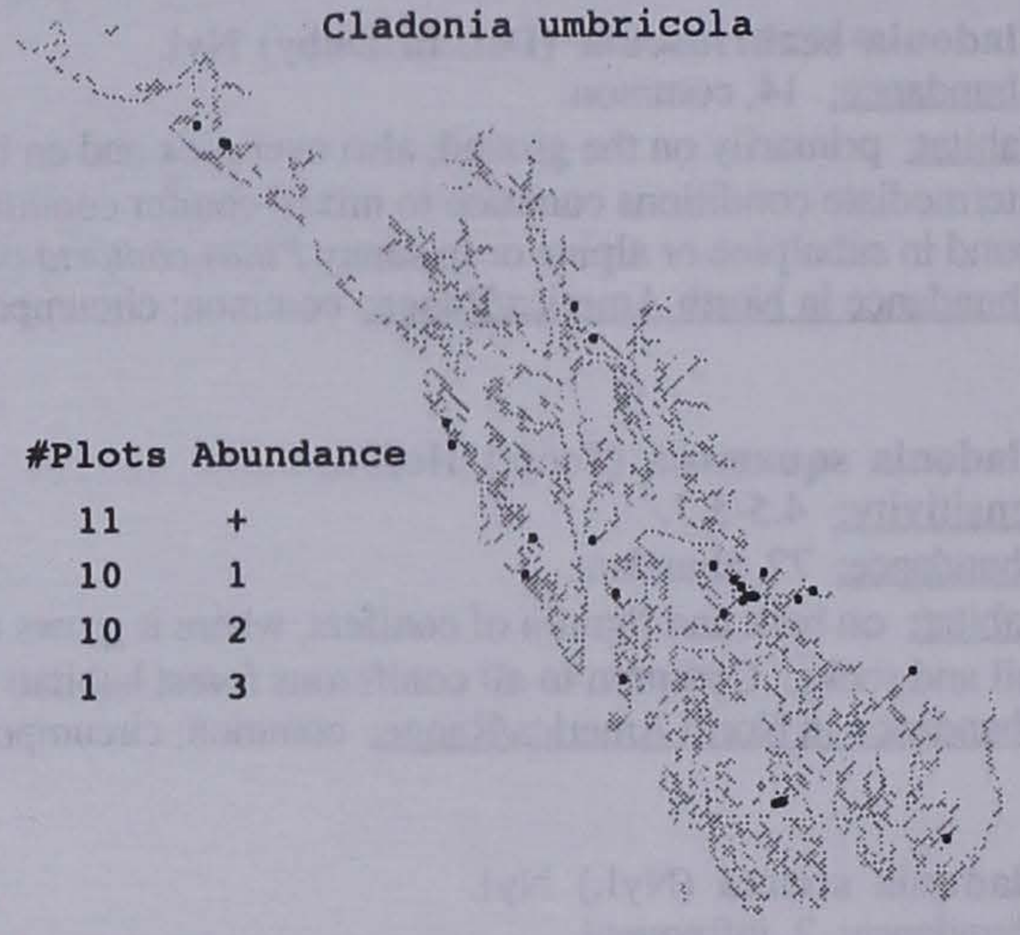
#Plots	Abundance
1	+
2	1

Cladonia transcendens



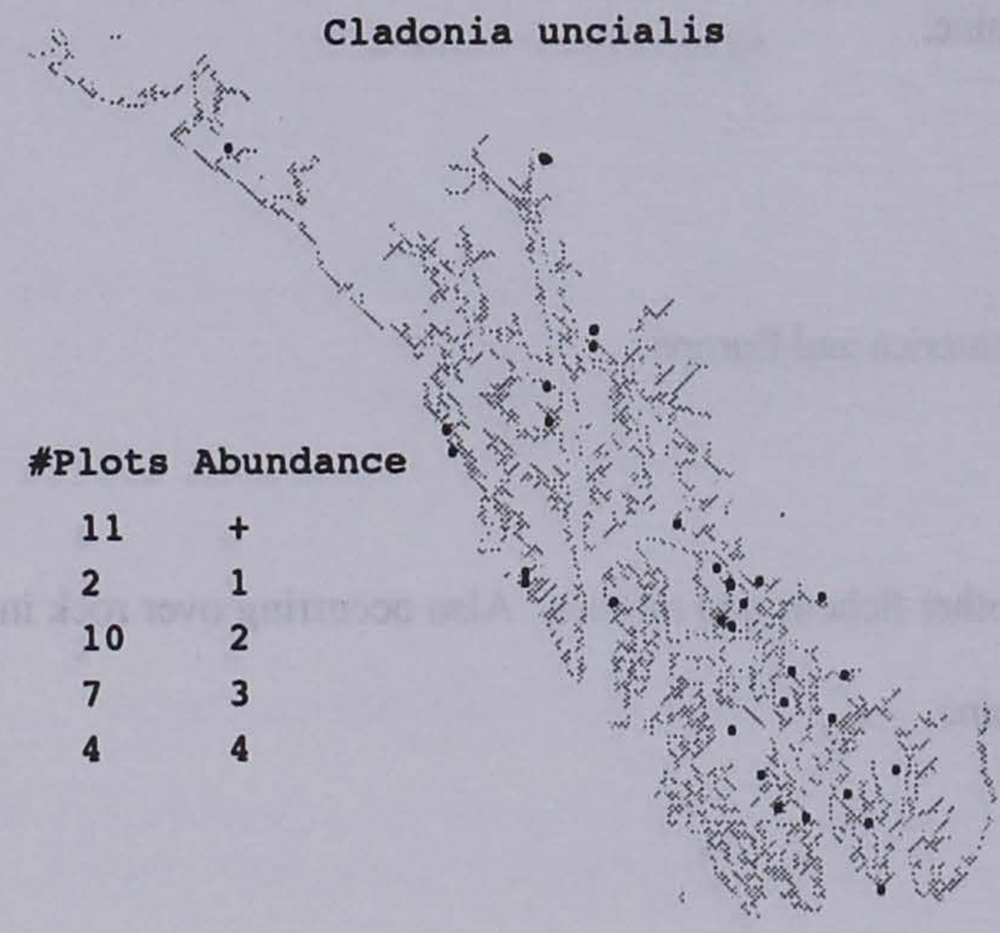
#Plots	Abundance
2	+
3	1
1	4

Cladonia umbricola



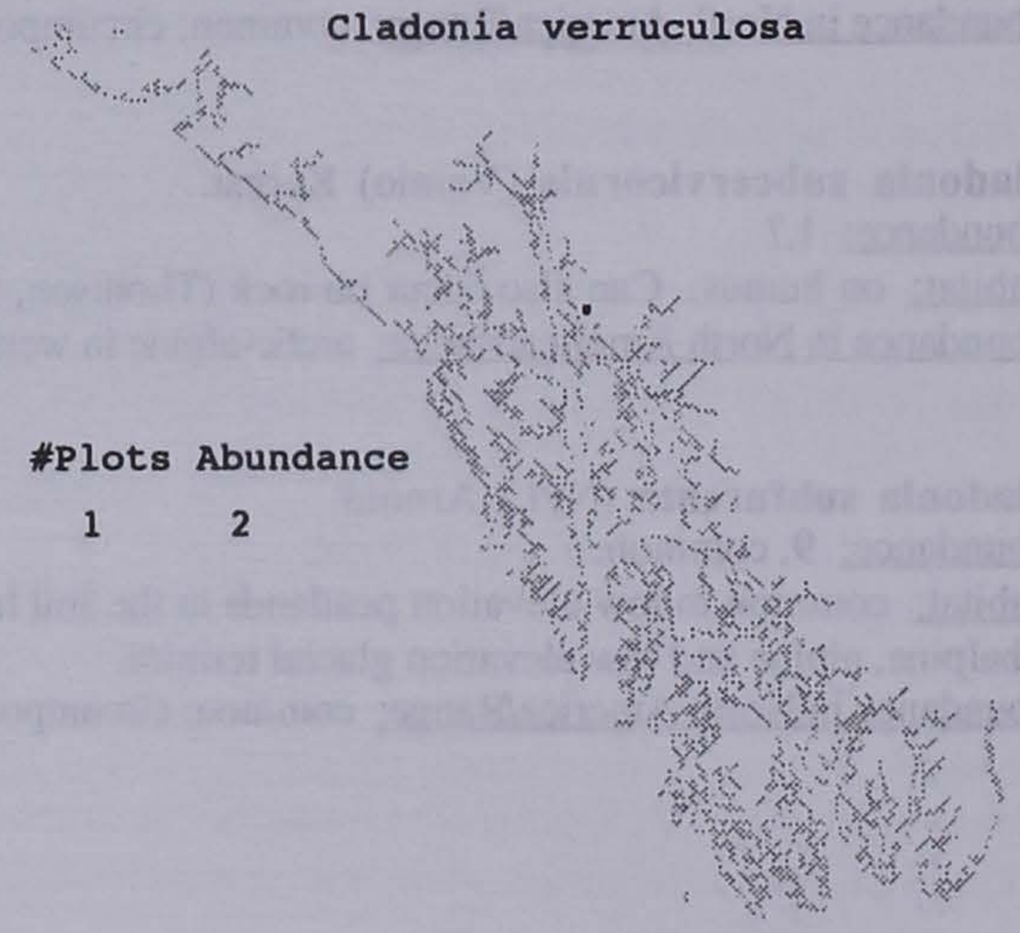
#Plots	Abundance
11	+
10	1
10	2
1	3

Cladonia uncialis



#Plots	Abundance
11	+
2	1
10	2
7	3
4	4

Cladonia verruculosa



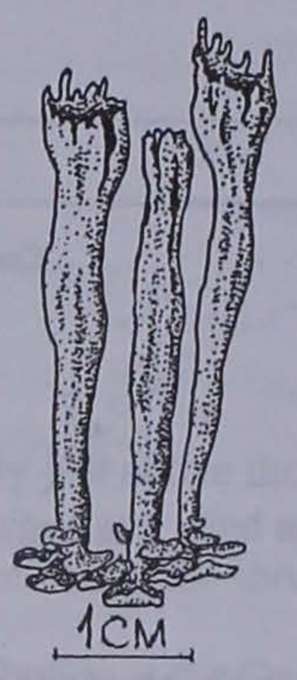
#Plots	Abundance
1	2

Cladonia subsquamosa Krempelh.
Abundance: 4, common?
Habitat: on mossy logs and rocks, on boles, snags and stumps of conifers.
Abundance in North America/Range: common; Europe, Australia, North and South America.
Notes: similar to *C. squamosa* but more branched. Probably undercollected.

Cladonia subsubulata Nyl.
Abundance: 0, rare.
Habitat: habitat and distribution poorly known in this area.
Abundance in North America/Range: Pacific Northwest North American endemic; known from Japan, western and eastern North America and Brazil (Krog, 1968).
Notes: reported from Deer Mtn. near Ketchikan by Krog (1968). This report should be verified as the taxonomy of this species was poorly understood at that time. Could be a thamnolic acid containing chemotype of *Cladonia crispata*.

Cladonia subulata (L.) Weber **ex** Wigg.
Abundance: 2, infrequent to rare.
Habitat: over rocks or soil in open areas and forests.
Abundance in North America/Range: common; circumpolar boreal.

Cladonia sulphurina (Michx.) Fr.
Abundance: 19, abundant.
Habitat: corticolous on conifers in mixed conifer and *Pinus contorta* forests, in other open forested associations, and on *Tsuga mertensiana* in the subalpine. On soil humus with other lichens in mosses in gravelly, well drained low elevation sites.
Abundance in North America/Range: abundant; circumpolar low arctic and boreal.



Cladonia sulphurina

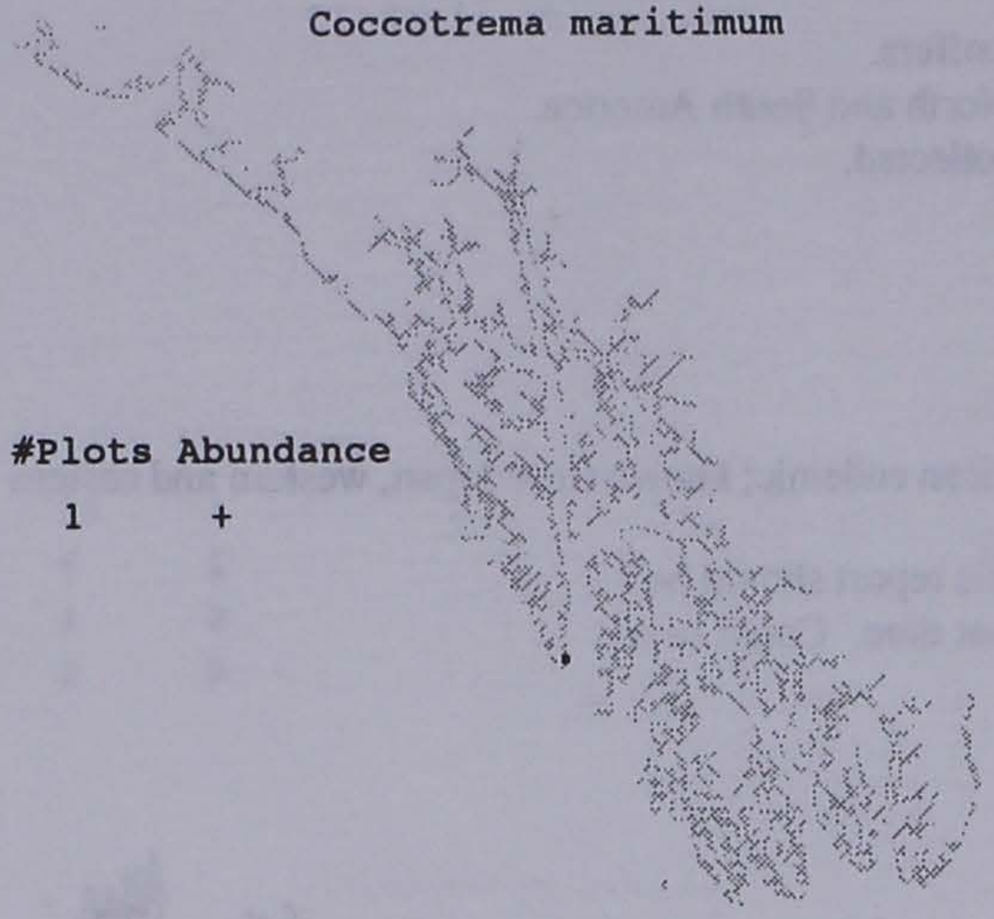
Cladonia symphycarpa (Ach.) Fr.
Abundance: 1, rare.
Habitat: on mineral, usually calciferous, soil in the American Arctic (Thomson, 1984). In the alpine and subalpine in British Columbia (Noble et al., 1987). Also known from coastal limestones, basic dune systems and mountain diorites in Britain (Purvis et al., 1992).
Abundance in North America/Range: poorly collected in North America; circumpolar low arctic-boreal from North America, Europe and Asia. Easily overlooked because only basal squamules may be present. Rarely produces podetia.

Cladonia thomsonii Ahti
Abundance: 5, infrequent.
Habitat: on ground in soil humus from low elevation peatlands to alpine and subalpine.
Abundance in North America/Range: Alaska and Northwest Territories of Canada.
Notes: southern range extension within Alaska.

Cladonia transcendens (Vainio) Vainio
Abundance: 6, infrequent.
Habitat: on bark and lignum of conifers. On low branches and bases of tree trunks in most low elevation coniferous forest types. Not found in subalpine or alpine.
Abundance in North America/Range: common in western North America. Expected in the Russian Far East (Golubkova et al., 1978) but only one collection reported (Mikulin, 1990).

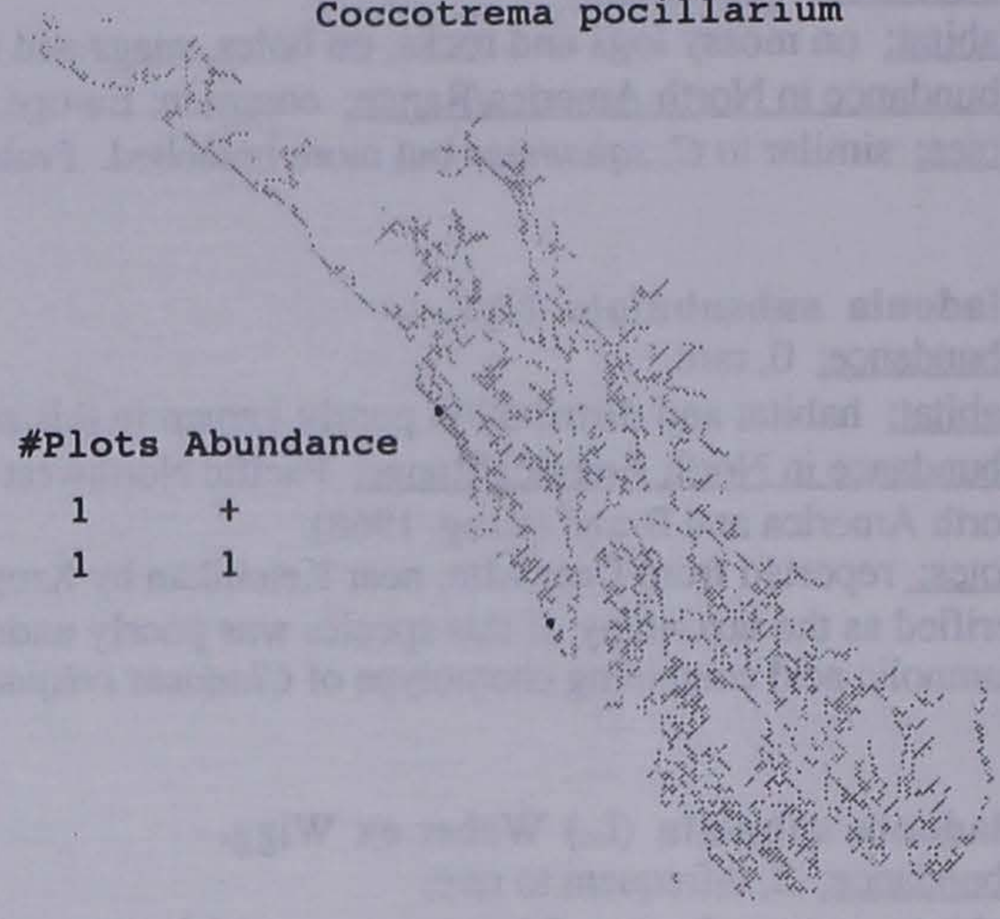
Cladonia turgida Ehrh. **ex** Hoffm.
Abundance: 0, ?
Habitat: on mineral and humus rich soils.
Abundance in North America/Range: common; circumpolar arctic-temperate.
Notes: reported from Mt. Roberts and near Mendenhall Lake in Juneau (Krog, 1968).

Coccotrema maritimum



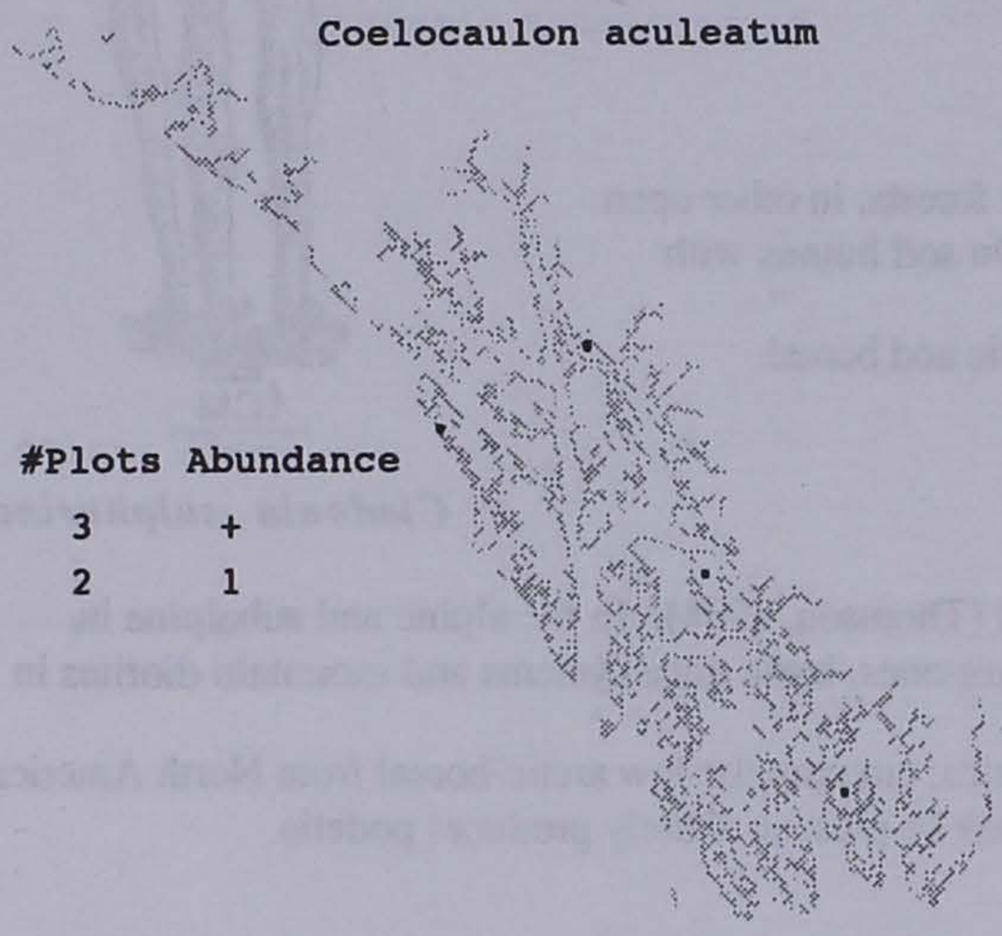
#Plots	Abundance
1	+

Coccotrema pocillarium



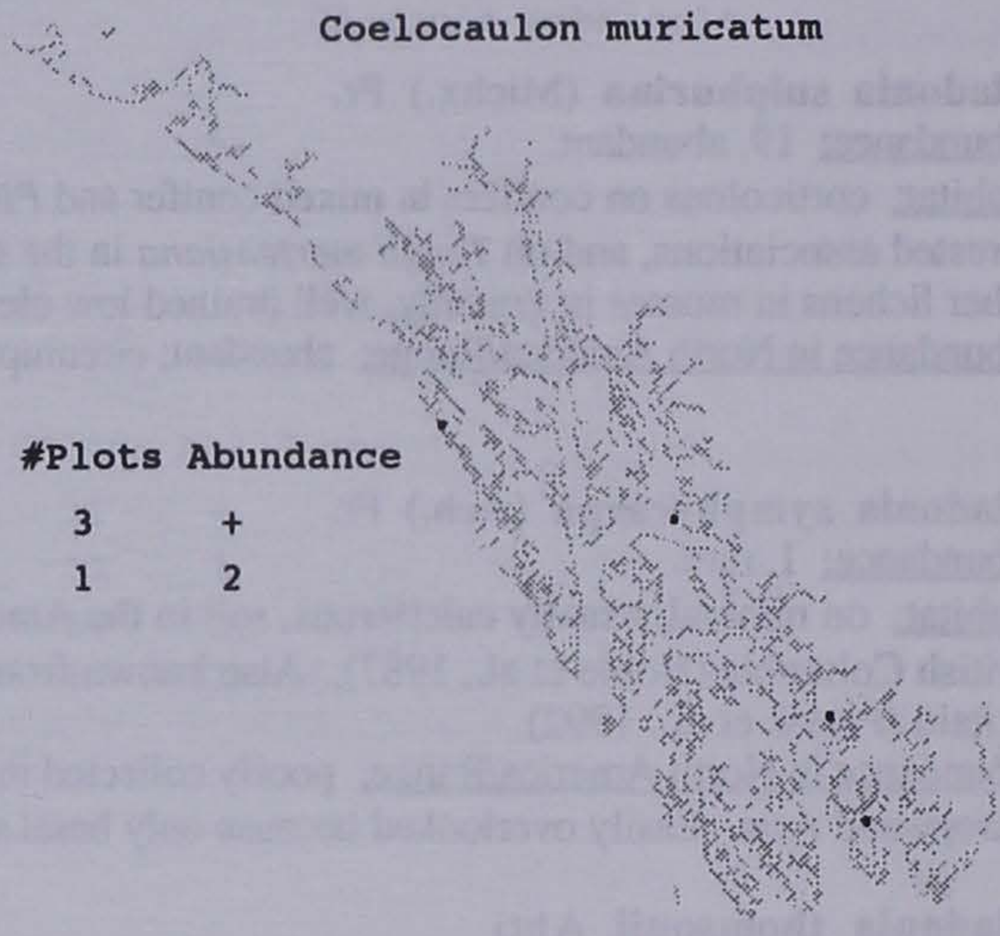
#Plots	Abundance
1	+
1	1

Coelocaulon aculeatum



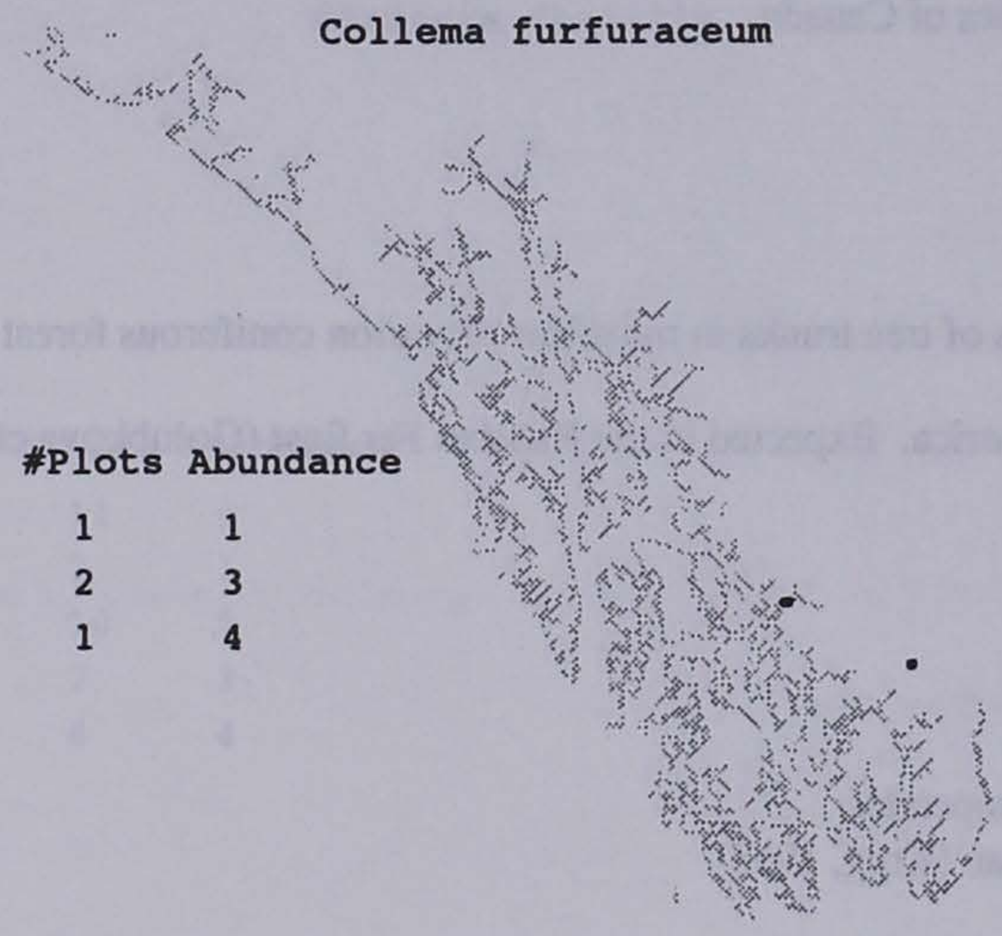
#Plots	Abundance
3	+
2	1

Coelocaulon muricatum



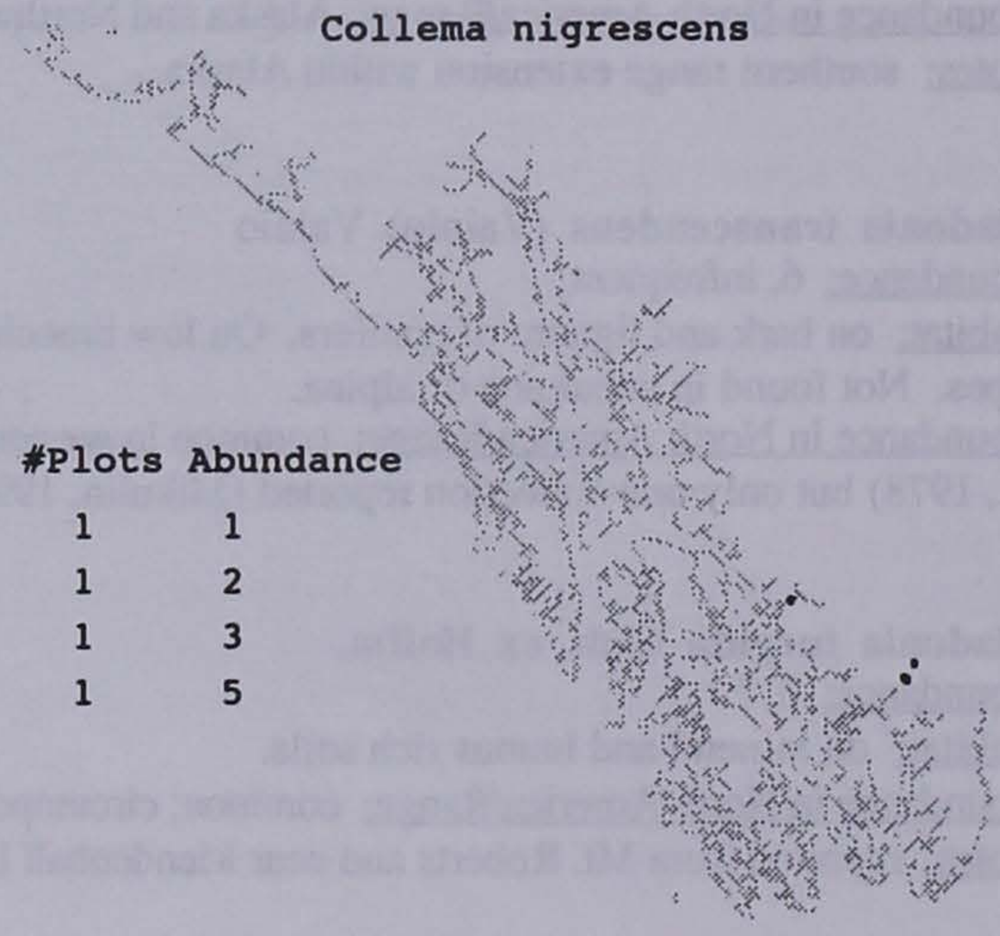
#Plots	Abundance
3	+
1	2

Collema furfuraceum



#Plots	Abundance
1	1
2	3
1	4

Collema nigrescens



#Plots	Abundance
1	1
1	2
1	3
1	5

Cladonia umbricola Tønsb. & Ahti
var. **colombiana**
var. **umbricola**
Abundance: 46, abundant.
Habitat: on decaying wood or trunks of conifers and cottonwood. Corticolous on lower branches, crotches and trunks of conifers. In *Pinus contorta*, spruce and hemlock forests and most forest types including the subalpine. Not found in alpine habitats.
Abundance in North America/Range: common Pacific Northwest North American endemic and also found in western Norway. Recently described species (Tønsberg & Ahti, 1980); distribution infrequent outside North America, appears to be incompletely circumpolar, boreal and oceanic.

Cladonia uncialis (L.) Weber **ex** Wigg.
Abundance: 31, common.
Habitat: widespread on ground in open peatlands from low elevation to alpine.
Abundance in North America/Range: abundant; circumpolar arctic-alpine.

Cladonia verruculosa (Vainio) Ahti
Abundance: 2, rare-infrequent?
Habitat: on soil or moss over gravel at glacial termini.
Abundance in North America/Range: infrequent; known only in western North America.

Coccotrema maritimum Brodo
Abundance: 1, rare
Habitat: on beach rocks in extensive colonies at the upper edge of, or just above salt-spray zone, usually just above the Verrucaria maura and forming a distinct white zone of variable width depending on the amount of local wave and wind action. Sometimes on vertical surfaces of highly exposed rocks on slopes facing the open water but up to 700 m above the shore. Never on bark, wood or dead vegetation (Brodo, 1973).
Abundance in North America/Range: known only from the Pacific Northwest, where the center of distribution is the Queen Charlotte Islands; absent outside North America.
Notes: type specimen is from Moresby Island in the Queen Charlotte Islands. This report is a northern range extension.

Coccotrema pocillarium (Cumm.) Brodo
Abundance: 2, frequent?
Habitat: on bark, logs or trees in coastal forests usually at the beach edge (Brodo, 1973).
Abundance in North America/Range: infrequent; coastal species, frequent endemic to the Pacific Northwest of North America from Alaska to Oregon. Absent outside North America.
Notes: The type collection is from Faragut Bay in southeastern Alaska. It was collected on June 5, 1899 by Trelease (#806a) on *Alnus*.

Coelocaulon aculeatum (Schreber) Link
Abundance: 5, common.
Habitat: over ground in open peatlands and open mixed conifer and *Pinus contorta* forests. Found in alpine and subalpine in British Columbia.
Abundance in North America/Range: abundant; circumpolar arctic-alpine.

Coelocaulon muricatum (Ach.) Laundon
Abundance: 4, infrequent?
Habitat: over ground in open peatlands and open *Pinus contorta* forests. Not found in alpine or subalpine elevation so far.
Abundance in North America/Range: common, but rarely collected in North America; common outside North America, circumpolar arctic-alpine.

Collema furfuraceum (Arnold) Du Rietz
Abundance: 4, common.
Habitat: over bark of *Populus trichocarpa* in riparian areas at lower elevations.
Abundance in North America/Range: infrequent; circumpolar boreal, Alaska to Mexico.

Collema nigrescens (Huds) DC.
Sensitivity: 6.
Abundance: 4, common.
Habitat: over bark of *Populus trichocarpa* in riparian areas at lower elevations.
Abundance in North America/Range: circumpolar, Alaska to California.

Collema tenax (Swartz) Ach.
Abundance: 0, ?
Habitat: on soil, usually calciferous, including clays to sands (Thomson, 1984).
Abundance in North America/Range: circumpolar arctic to temperate.
Notes: reported by Herre (1919).

Cornicularia normoerica (Gunn.) Du Rietz
Abundance: 0, ?
Habitat: expected over well lit, siliceous rocks, boulders and cliffs in wind-swept, alpine or glacially influenced areas (Thomson, 1984; Purvis et al., 1992).
Abundance in North America/Range: infrequent and rarely collected in North America; known in North America from southeastern Alaska south to Oregon . Also known from Iceland, Europe (as an arctic-alpine species) and Japan.
Notes: reported from Muir Glacier in Glacier Bay National Park (Krog, 1968).

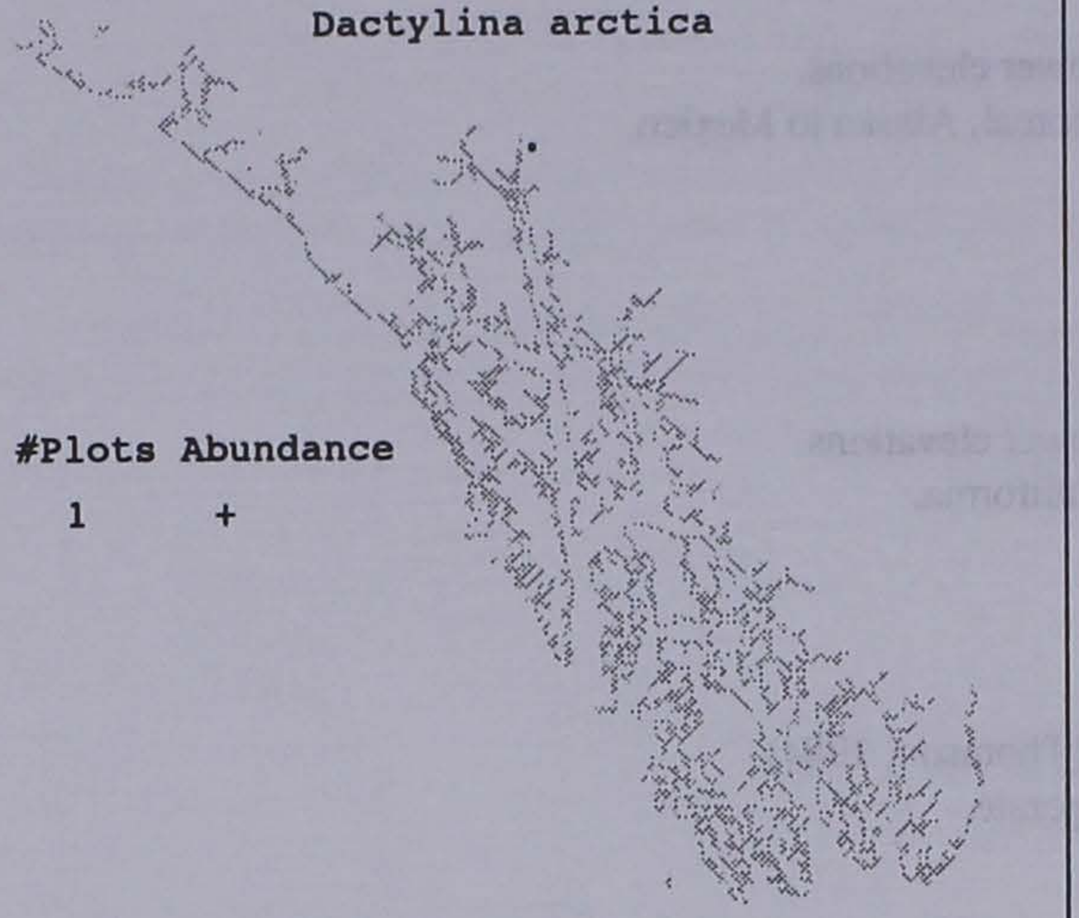
Dactylina arctica (Richardson) Nyl.
Abundance: 1, ?
Habitat: alpine and subalpine.
Abundance in North America/Range: frequent in western North America; common in western Europe and Asia, circumpolar arctic-alpine.
Notes: also collected from the Mendenhall Glacier Trail (Krog, 1968; Rita O'Clair's collection at the University of Alaska, Southeast herbarium).

Dactylina beringica Bird & Thoms.
Abundance: 0, ?
Habitat: alpine and subalpine.
Abundance in North America/Range: common; amphi-Beringian.
Notes: reported from the Juneau area (Thomson, 1984).

Dactylina ramulosa (Hook.) Tuck.
Abundance: 0, ?
Habitat: alpine and subalpine.
Abundance in North America/Range: Common; circumpolar arctic-alpine.
Notes: reported from Mt. Roberts near Juneau (Krog, 1968).

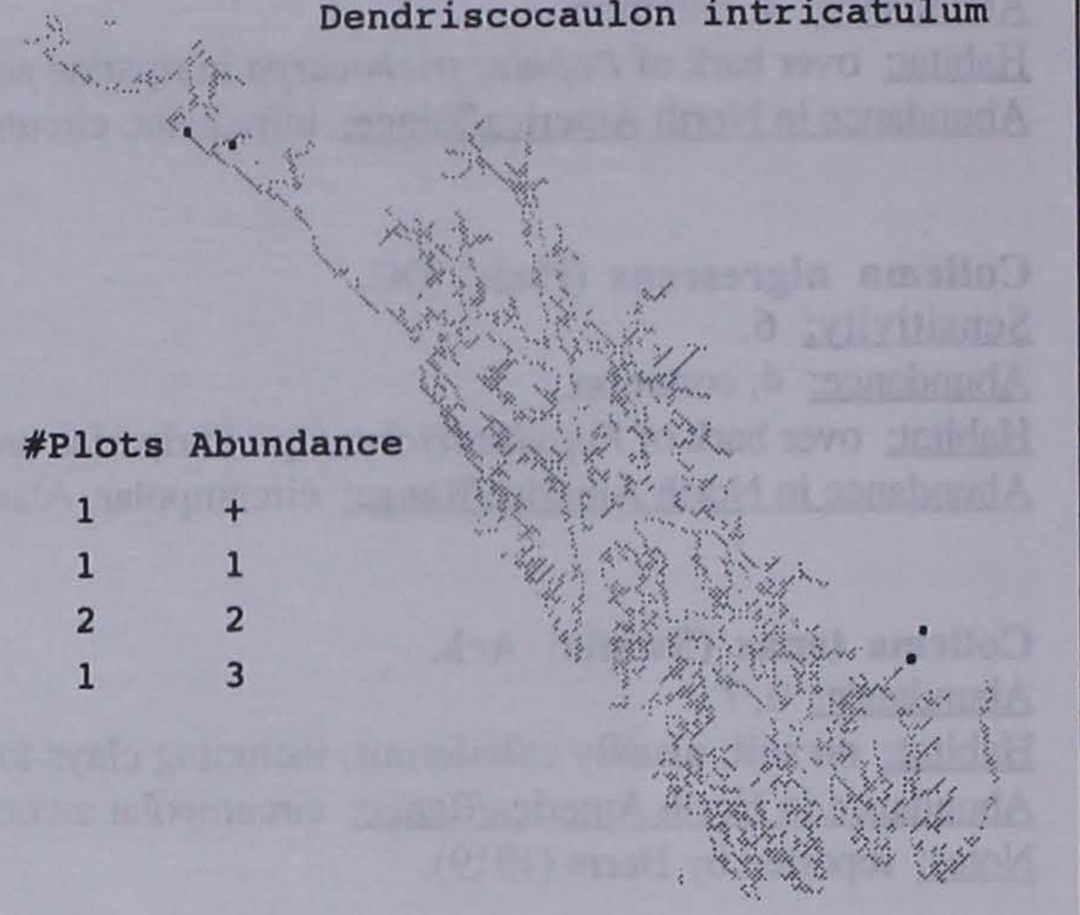
Dendriscocaulon intricatulum (Nyl.) Henssen
Abundance: 5, infrequent.
Habitat: on bark of *Picea*, *Alnus*, and *Salix*. At low elevations on the mainland, only island site was subalpine.
Abundance in North America/Range: rare throughout its range; found within oceanic habitats in eastern (e.g. New Brunswick, North Carolina) and western (Alaska, Queen Charlotte Islands) North America and elsewhere. May be undercollected in part because it is difficult to see.

Dactylina arctica



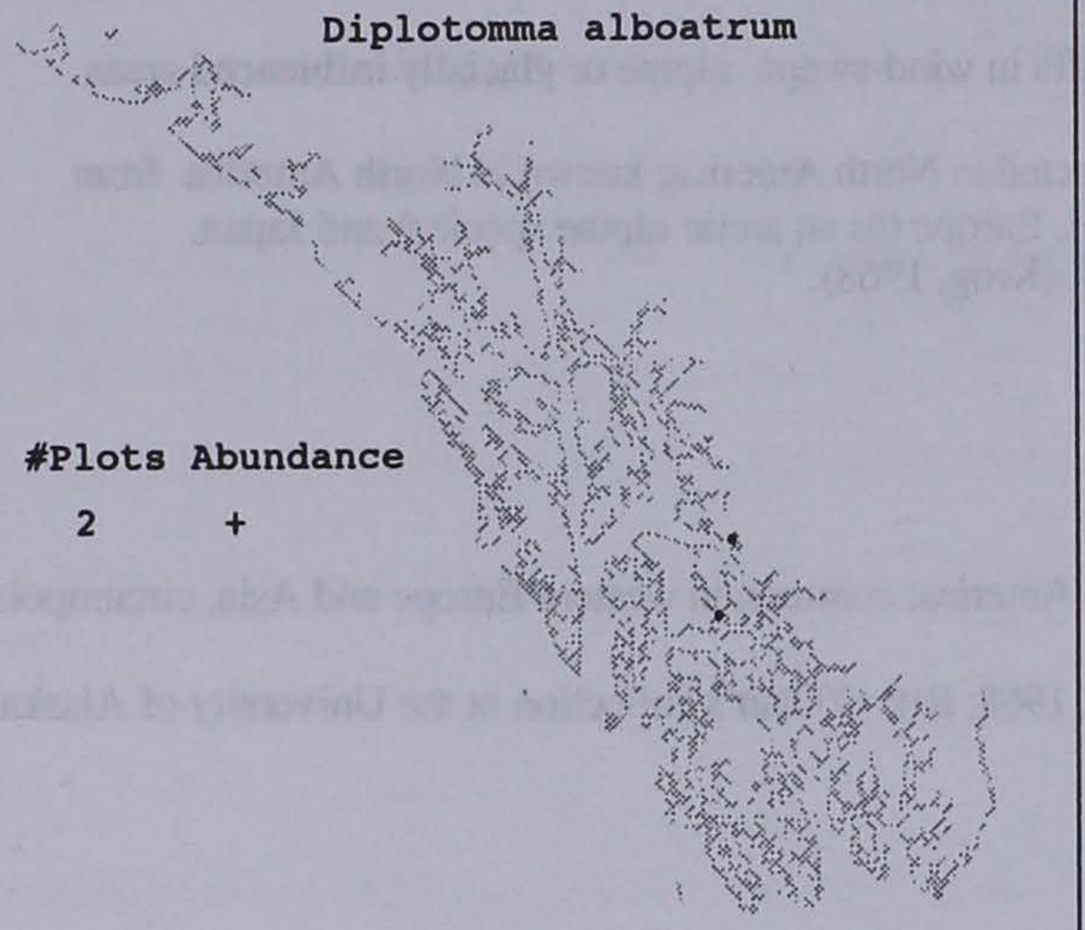
#Plots	Abundance
1	+

Dendriscocaulon intricatulum



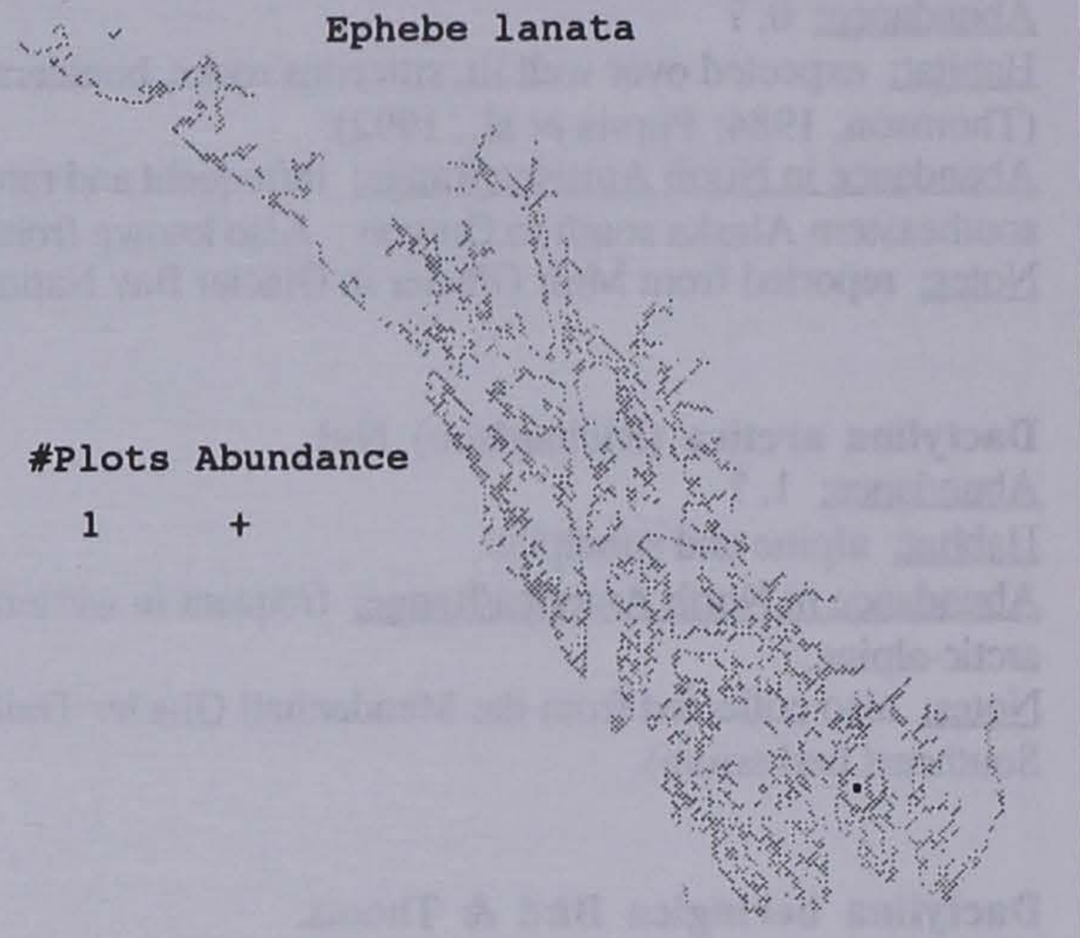
#Plots	Abundance
1	+
1	1
2	2
1	3

Diplotomma alboatrum



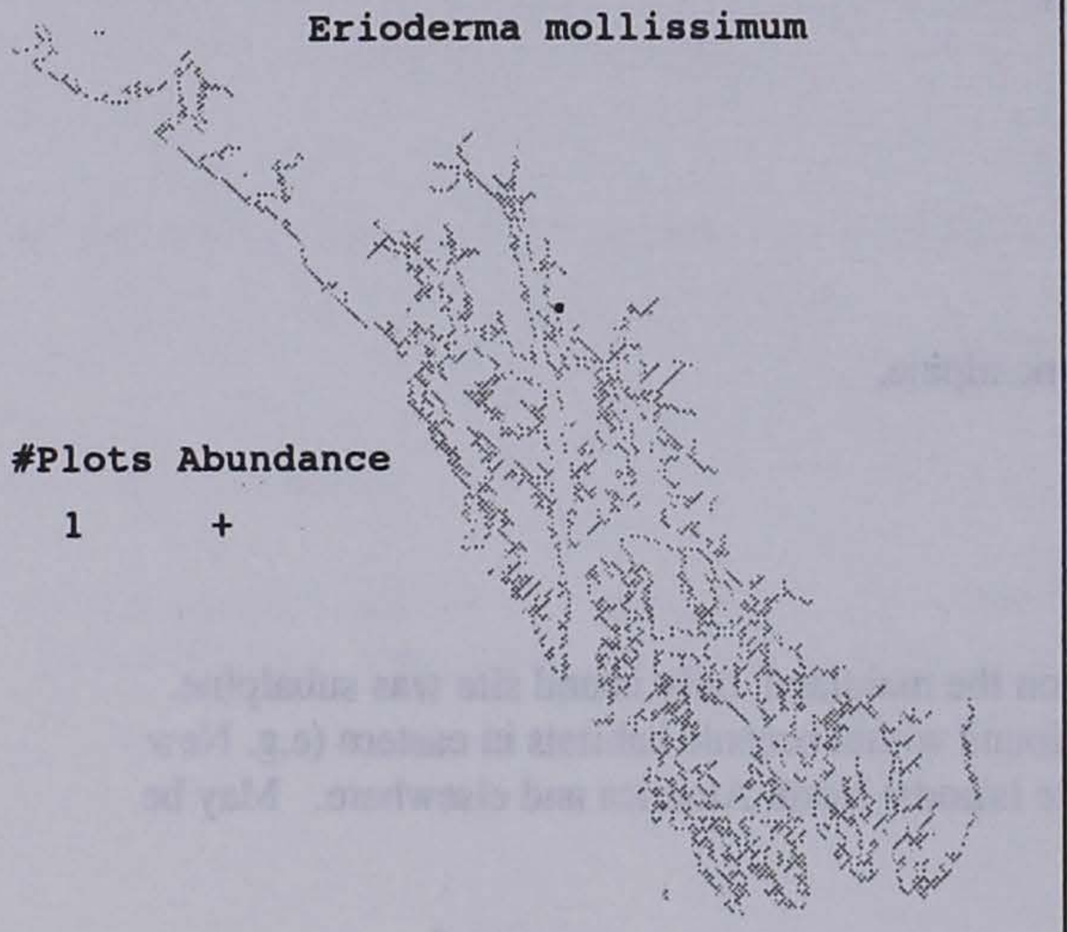
#Plots	Abundance
2	+

Ephebe lanata



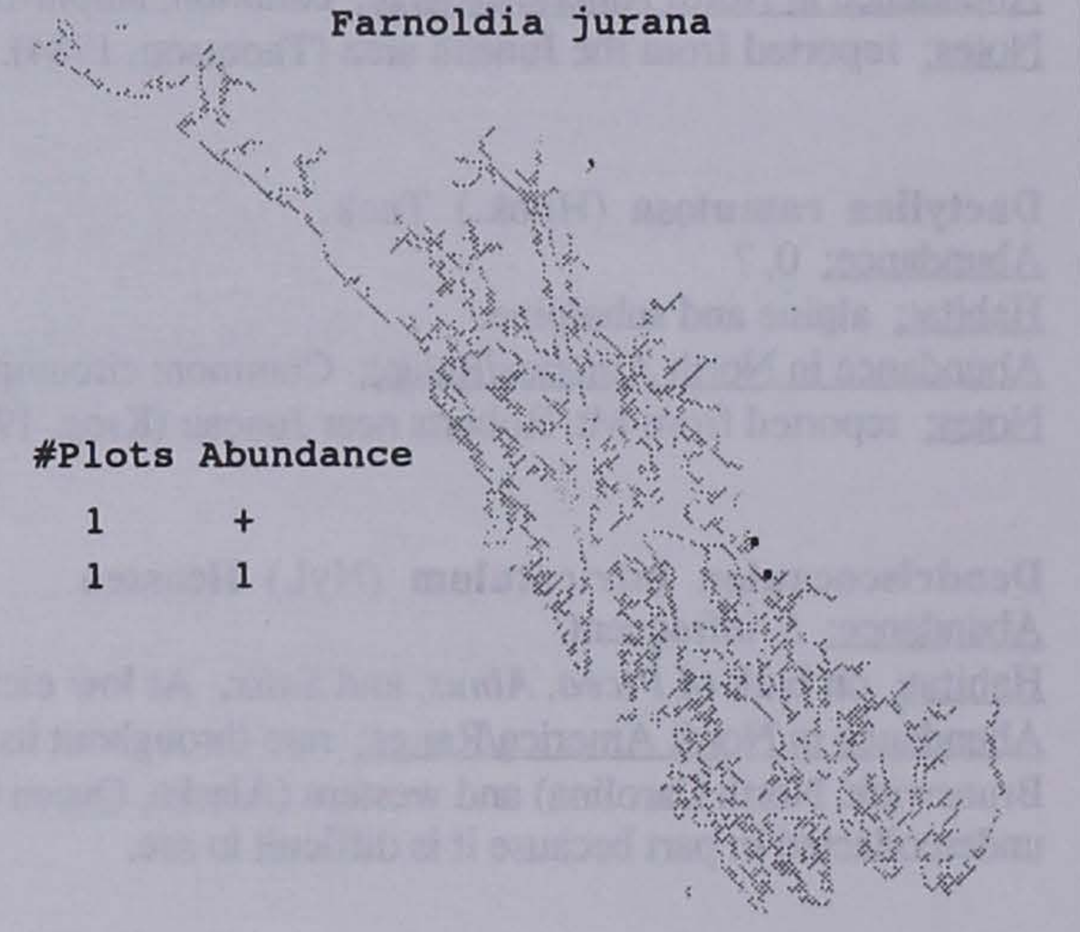
#Plots	Abundance
1	+

Erioderma mollissimum



#Plots	Abundance
1	+

Farnoldia jurana



#Plots	Abundance
1	+
1	1

Dermatocarpon intestiforme (Körber) Hasse
Abundance: 1, ?
Habitat: over calcareous or mafic rocks in open sites in the alpine and subalpine.
Abundance in North America/Range: rarely collected in North America where it occurs in Alaska and western Canada south to Washington and Montana; widespread bipolar, circumpolar arctic-alpine.

Dermatocarpon luridum (With.) Laundon
Abundance: 0, ?
Habitat: common over seasonally inundated rock in open waterways from low elevation to alpine British Columbia (Goward et al., 1994).
Abundance in North America/Range: main range in temperate regions but extending to arctic boundaries, circumpolar.
Notes: reported from Howkan Bay near Ketchikan (Krog, 1968).

Dermatocarpon miniatum (L.) Mann
Abundance: 2, ?
Habitat: on rock.
Abundance in North America/Range: common; main range in temperate regions but extending to arctic boundaries. In exposed sites, this species may adopt an unattached, vagrant habit, and is then sometimes treated as a separate species.
Notes: collected from intertidal zone of Martin Creek on the Bradfield Canal and at Naukati on Prince of Wales Island.

Dermatocarpon rivulorum (Arnold) Dalla Torre & Sarnth.
Abundance: 1, rare.
Habitat: on rocks in the alpine, especially in drainage areas where snow melt provides prolonged moisture or in occasionally flooded areas beside brooks (Thomson, 1984).
Abundance in North America/Range: rare arctic-alpine species found in Scandinavia, European Alps, Kamchatka, Alaska, British Columbia, Colorado and Greenland.

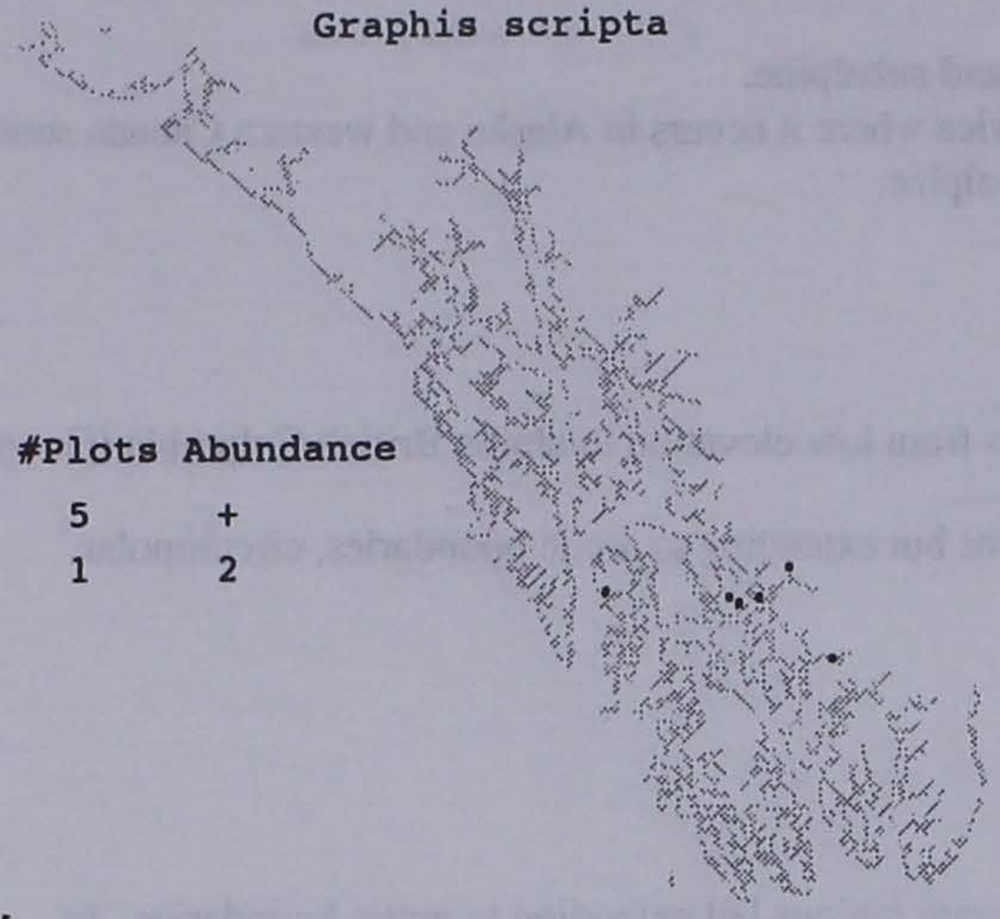
Diplotomma alboatrum (Hoffm.) Flotow
Sensitivity: 4.4.
Abundance: 2, ?
Habitat: on rock on low elevation inland mainland sites. One collection from a lava flow.
Abundance in North America/Range: infrequent; circumpolar, arctic to temperate regions.

Ephebe lanata (L.) Vain
Abundance: 2, common?
Habitat: on rock in alpine.
Abundance in North America/Range: infrequent, circumpolar arctic-alpine.

Epilichen scabrosus (Ach.) Clem. ex Hafellner
Abundance: 0, ?
Habitat: on the thallus of *Baeomyces rufus* (Purvis et al. 1992).
Abundance in North America/Range: probably often overlooked; circumpolar in the Northern Hemisphere.
Notes: previously reported from a Juneau icefield nunatak (McCullough, 1965).

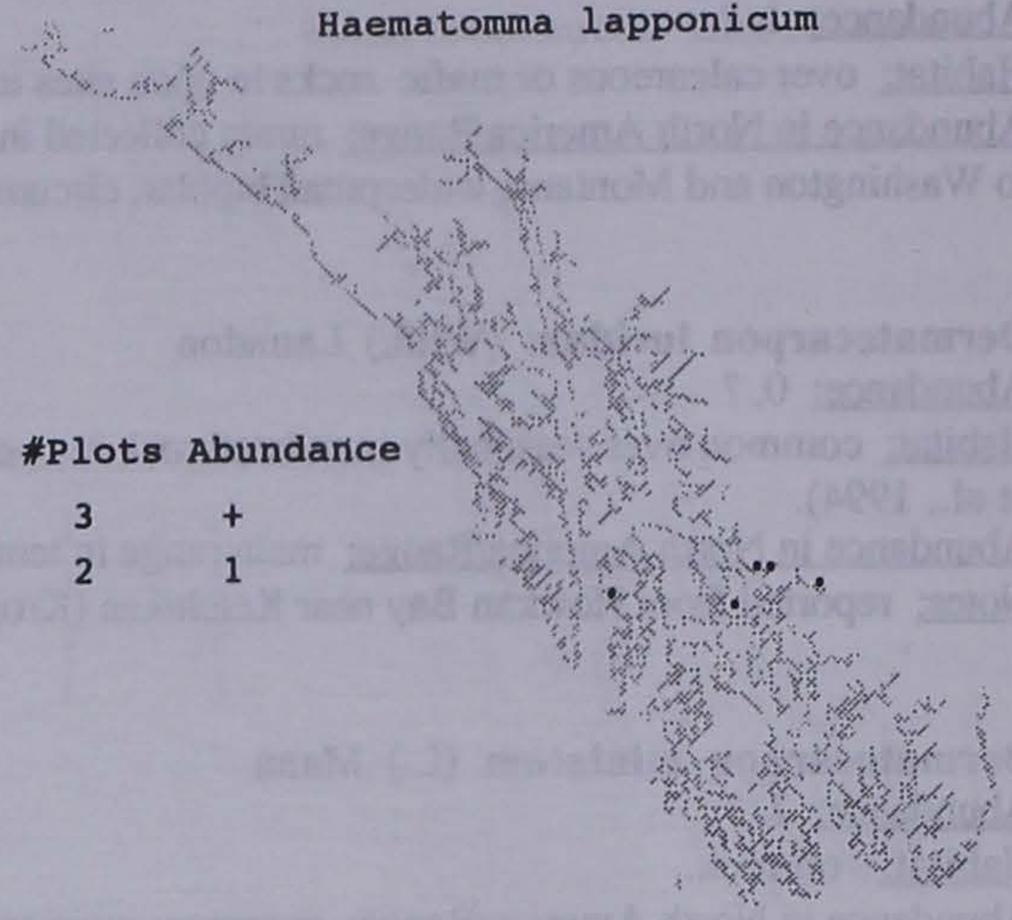
Erioderma mollissimum (Samp.) Du Rietz
Abundance: 1, rare.
Habitat: on conifer bark in open forest.
Abundance in North America/Range: rare.

Graphis scripta



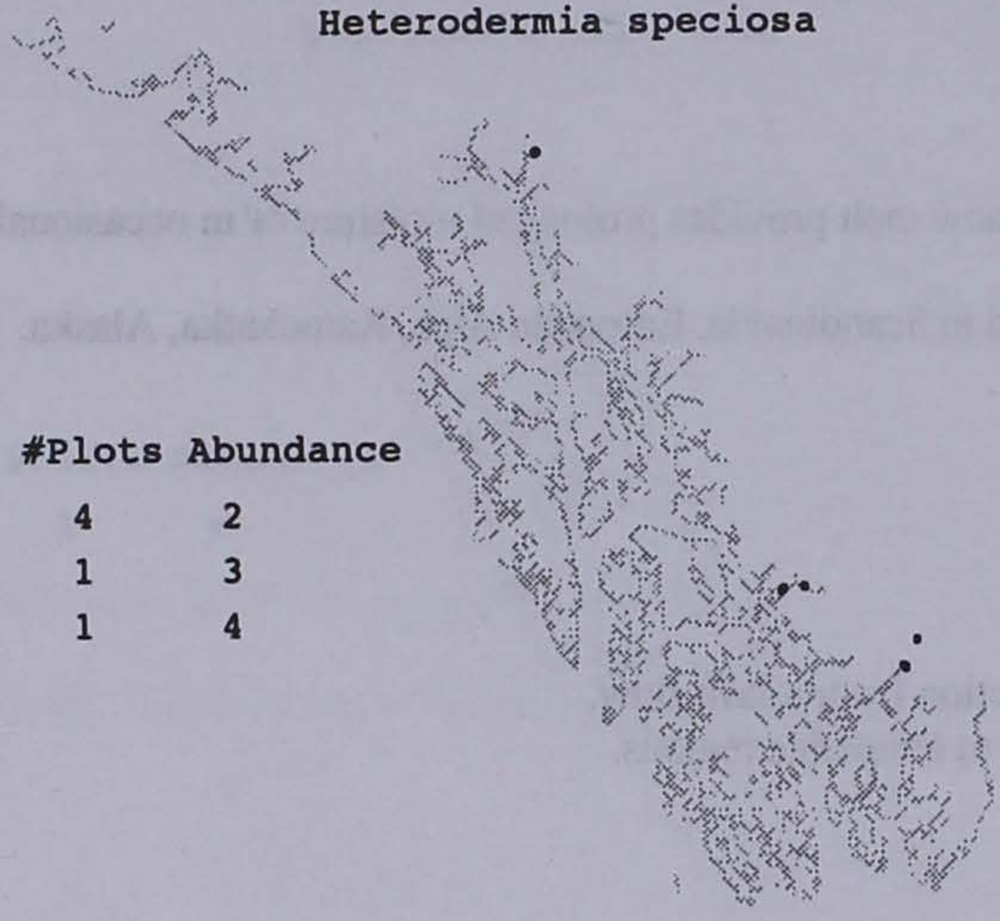
#Plots	Abundance
5	+
1	2

Haematomma lapponicum



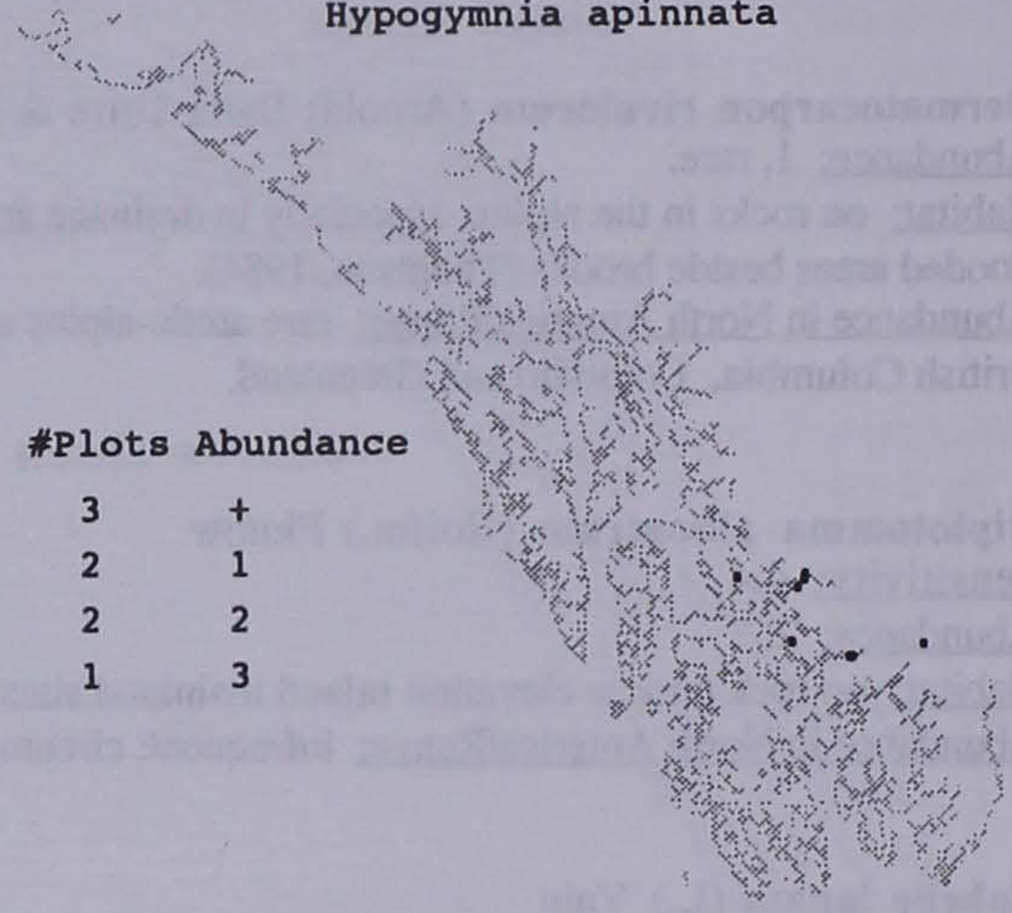
#Plots	Abundance
3	+
2	1

Heterodermia speciosa



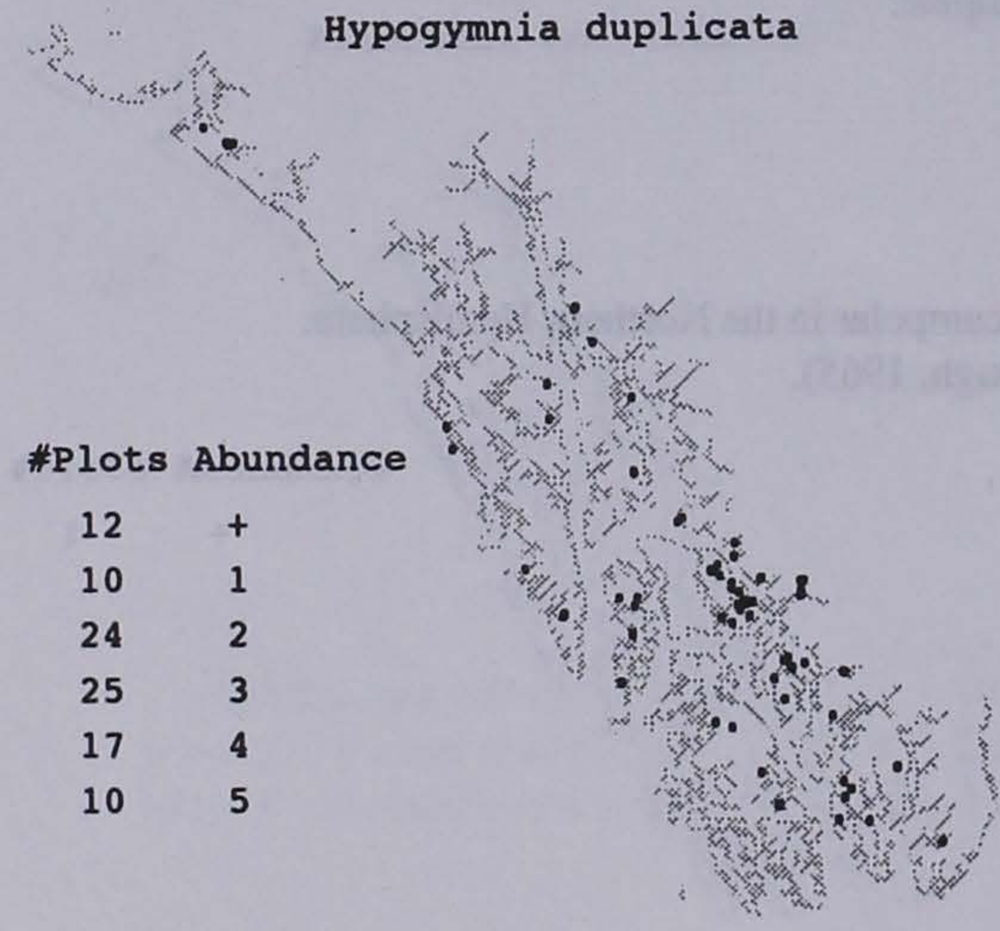
#Plots	Abundance
4	2
1	3
1	4

Hypogymnia apinnata



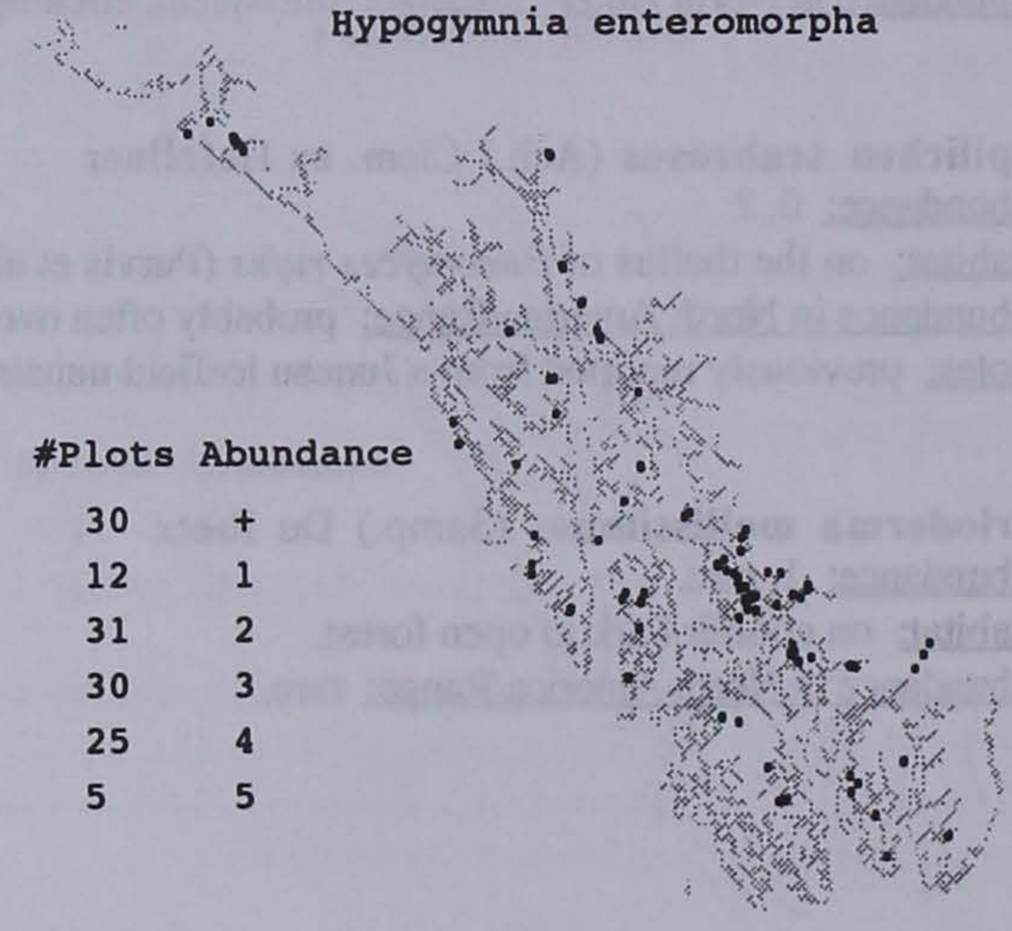
#Plots	Abundance
3	+
2	1
2	2
1	3

Hypogymnia duplicata



#Plots	Abundance
12	+
10	1
24	2
25	3
17	4
10	5

Hypogymnia enteromorpha



#Plots	Abundance
30	+
12	1
31	2
30	3
25	4
5	5

Farnoldia jurana (Schaerer) Hertel
Abundance: 2, ?
Habitat: on rock. Collection areas were a spruce forest along beach near Yakutat and a high alpine rocky area on Cosmos Peak in the Stikine Area mainland.
Abundance in North America/Range: rare; circumpolar, arctic-alpine. Known from northern North America, Europe, Turkey (Purvis et al., 1992)

Graphis scripta (L.) Ach.
Sensitivity: 7-8.
SO_2 Sensitivity: intermediate, 10/30/65.
Abundance: 6, common.
Habitat: on bark and trunks of *Alnus* and *Acer* in hardwood stands and beach edges.
Abundance in North America/Range: common; North America, Europe and throughout the former Soviet Union.

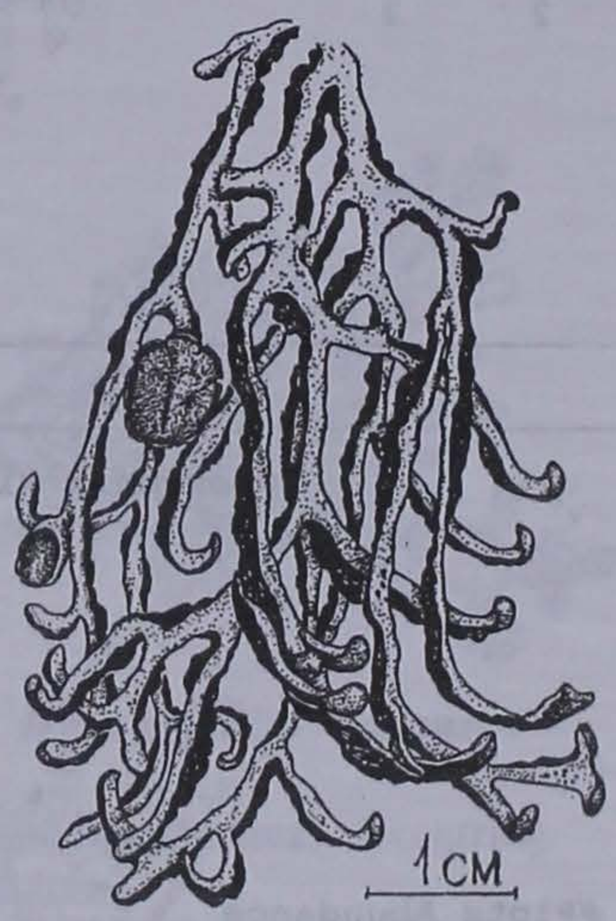
Graphis scripta

Haematomma lapponicum Räsänen
Abundance: 4, common.
Habitat: on rock in open low elevation forested areas.
Abundance in North America/Range: common; circumpolar arctic-alpine.
Notes: this species is now called **Ophioparma lapponica** (Räsänen) Hafelner & R. W. Rogers.

Heterodermia speciosa (Wulfen) Trevisan
Sensitivity: 4-6.
Abundance: 7, common.
Habitat: over deciduous trees and conifers, especially *Populus trichocarpa* and *Picea sitchensis*. All records to date have been from mainland river valleys.
Abundance in North America/Range: common in eastern North America; rare in western North America where it occurs from Alaska to Washington. Widespread in Europe and Asia, also known from western Eurasia.
Notes: also collected by R. O'Clair in Mendenhall Valley and Windfall Trail, 23 miles northwest of Juneau.

Hyperphyscia adglutinata (Flörke) H. Mayrh. & Poelt
Abundance: 0, ?
Habitat: on hardwoods (Thomson, 1963).
Abundance in North America/Range: infrequently collected (possibly because of its tiny size) but widely distributed in North America; North America, Europe, Central and South America.
Notes: reported from Glacier Bay (Cummings, 1904).

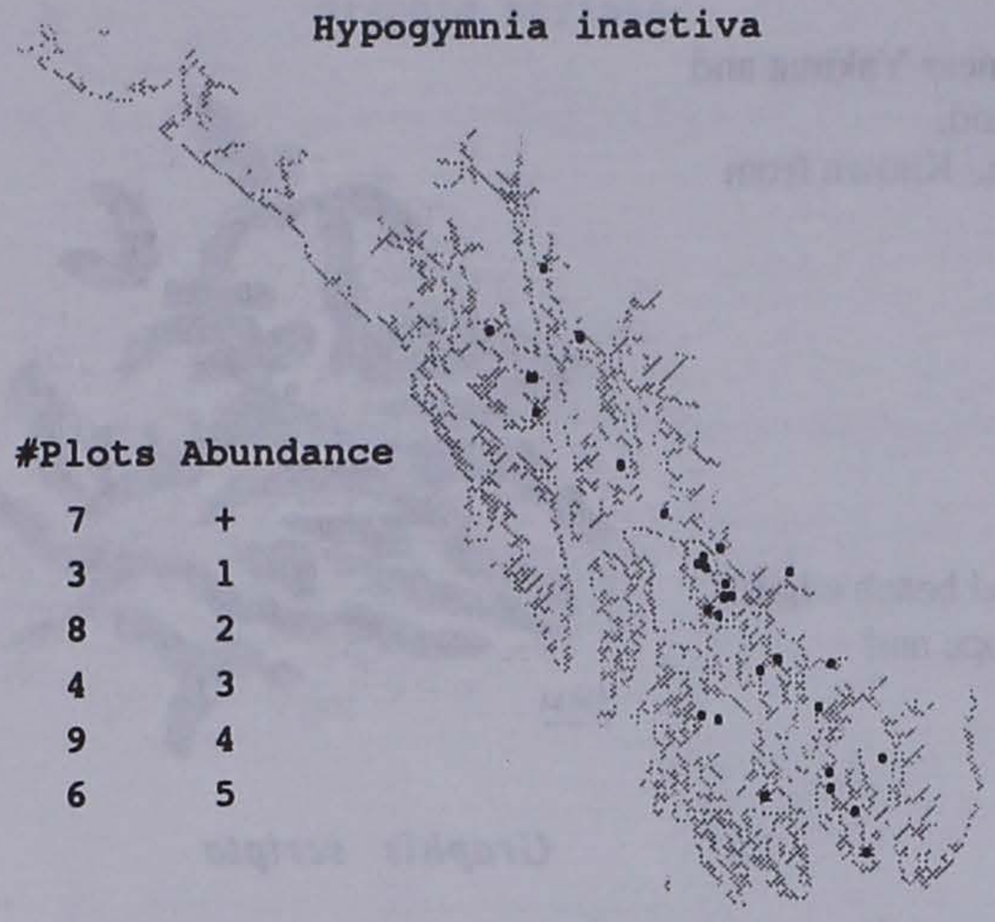
Hypogymnia apinnata Goward & McCune
Abundance: 8, common-abundant (see Notes).
Habitat: over trees, especially conifers, in coastal forests at lower elevations.
Abundance in North America/Range: western North America, Alaska to California.
Notes: this species was described in 1993 (Goward and McCune). Before this date, *H. appinata* was not distinguished from *H. enteromorpha* in the field and was probably undercollected.



Hypogymnia duplicata

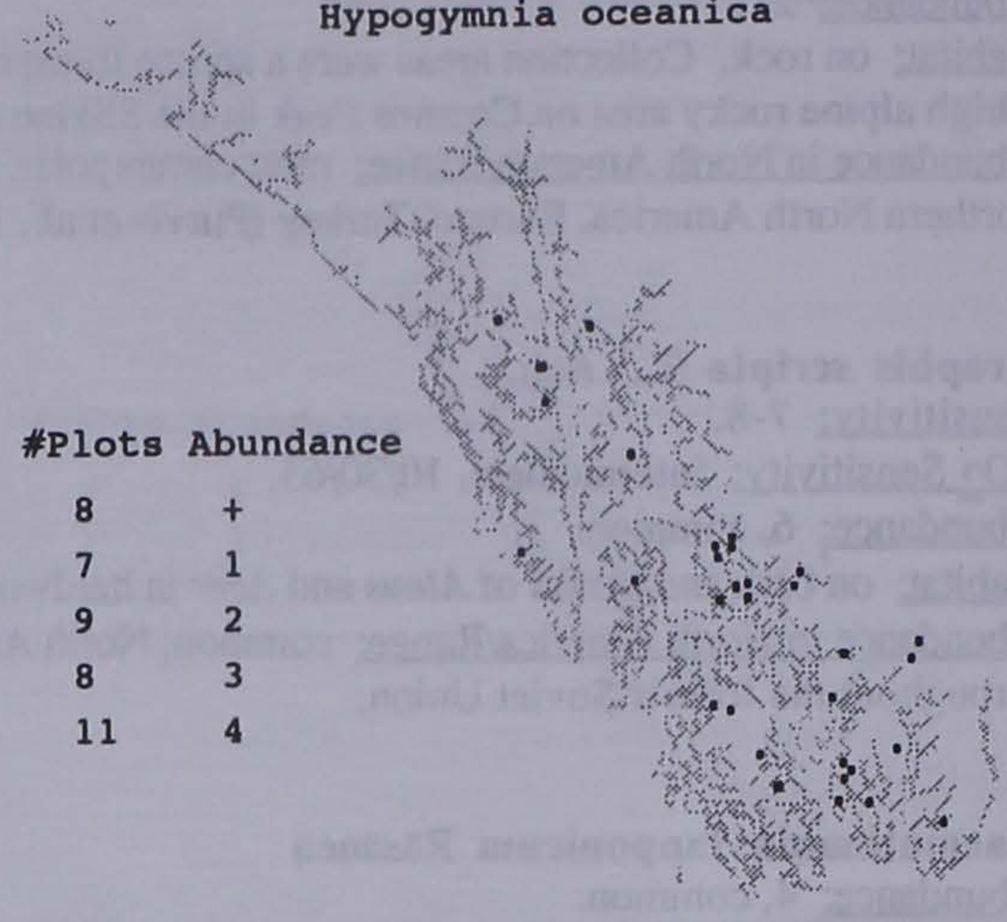
Hypogymnia bitteri (Lynge) Ahti
Abundance: 0, rare.
Habitat: over conifers in open forests. More common to the wet interior forests of British Columbia (Goward et al., 1992).
Abundance in North America/Range: common; circumpolar low arctic and boreal, Alaska to Mexico. Common outside North America.
Notes: collected by R. O'Clair (University of Alaska, Southeast).

Hypogymnia inactiva



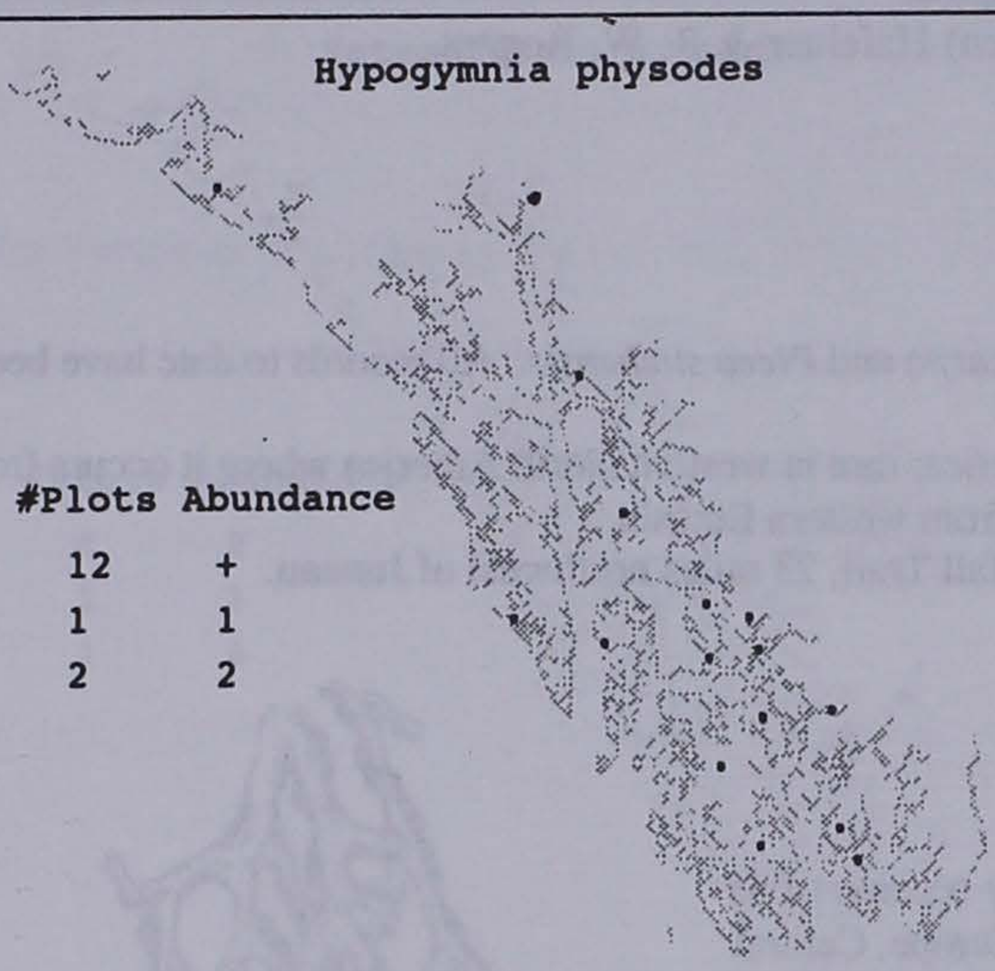
#Plots	Abundance
7	+
3	1
8	2
4	3
9	4
6	5

Hypogymnia oceanica



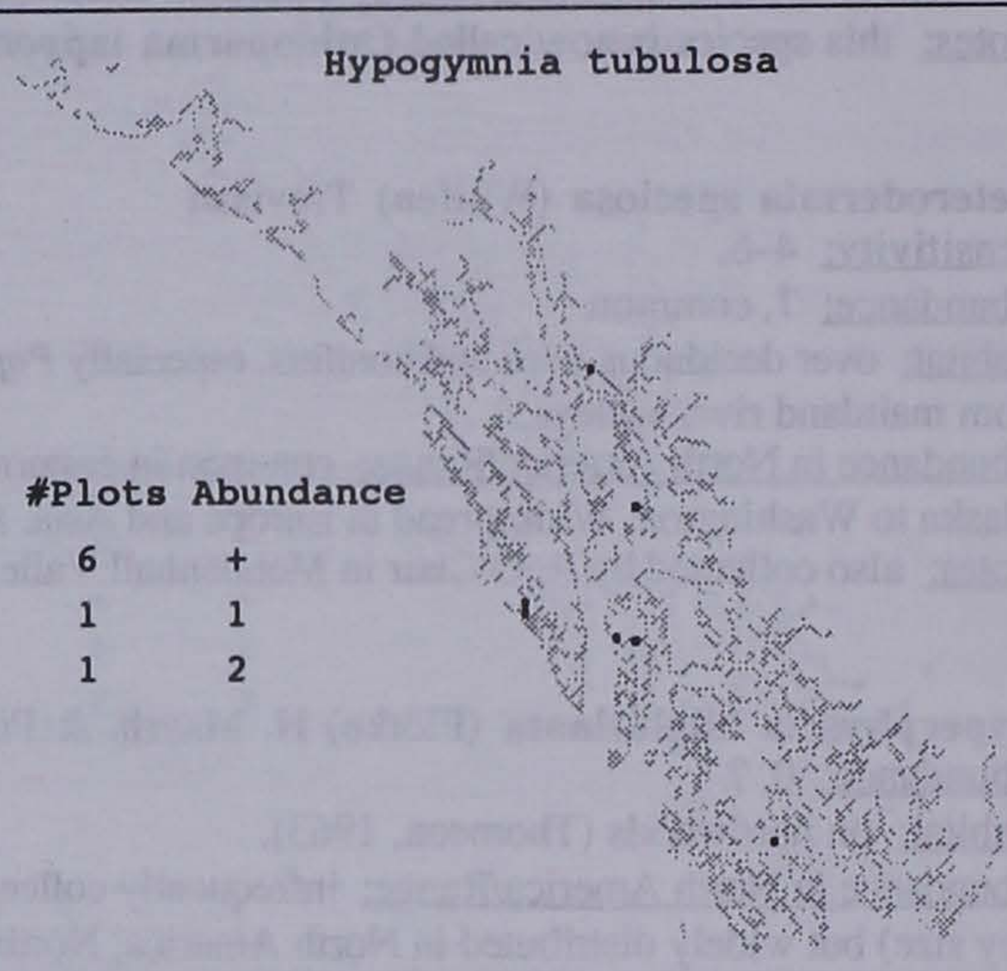
#Plots	Abundance
8	+
7	1
9	2
8	3
11	4

Hypogymnia physodes



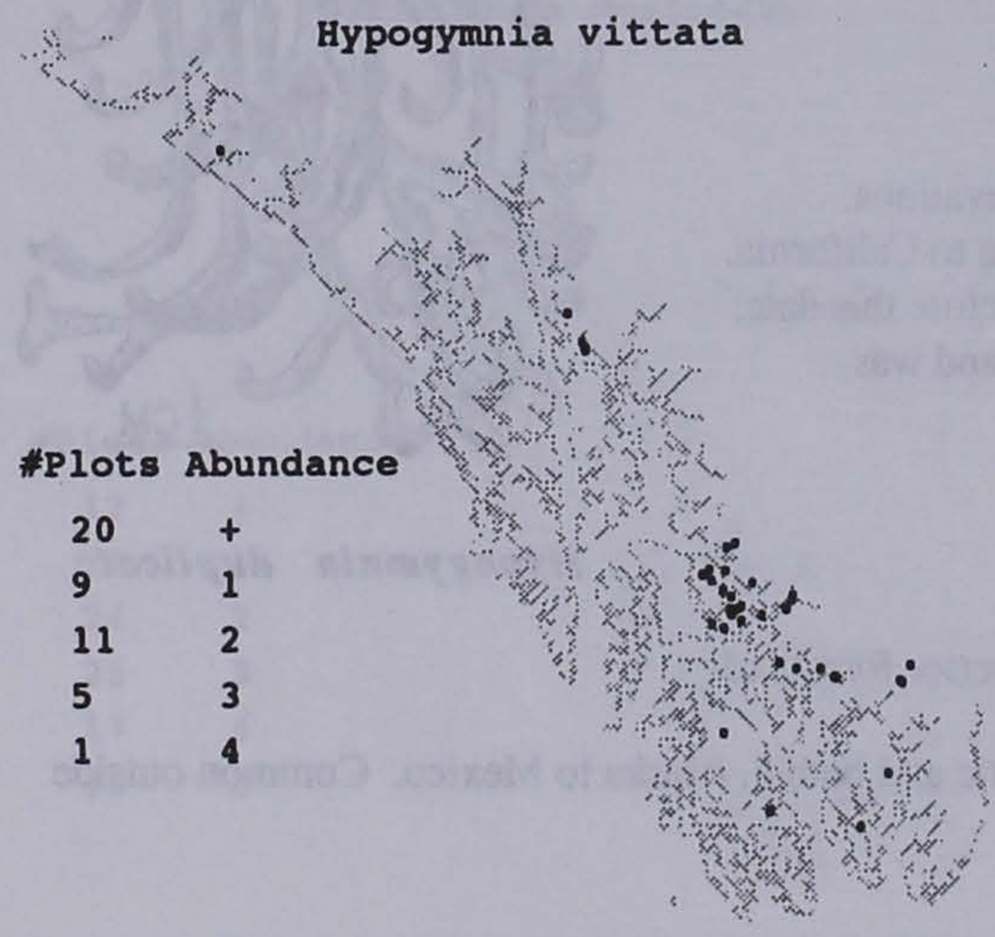
#Plots	Abundance
12	+
1	1
2	2

Hypogymnia tubulosa



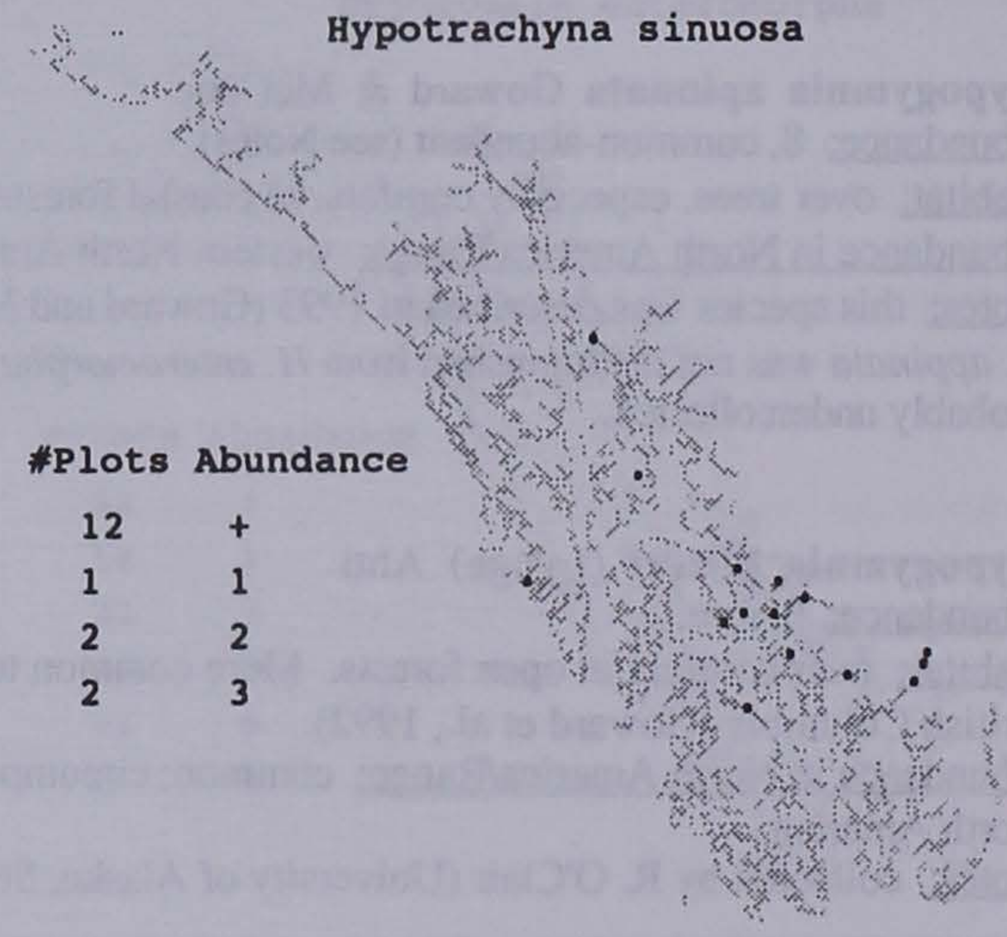
#Plots	Abundance
6	+
1	1
1	2

Hypogymnia vittata



#Plots	Abundance
20	+
9	1
11	2
5	3
1	4

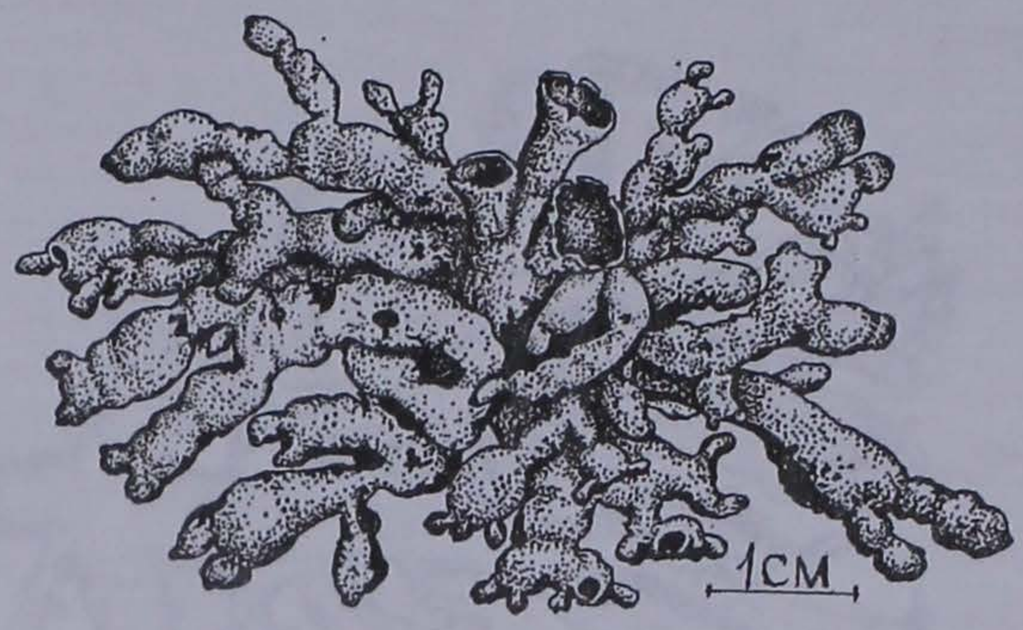
Hypotrachyna sinuosa



#Plots	Abundance
12	+
1	1
2	2
2	3

Hypogymnia duplicata (Sm. ex Ach.) Rass.
Abundance: 97, abundant.
Habitat: common over trees, especially conifers, in open coastal forests at lower elevation; particularly *Pinus contorta* and mixed conifer stands.
Abundance in North America/Range: western North America, Alaska to Oregon with primary populations in southeastern Alaska and coastal British Columbia.
(Ach.) Nyl.

Hypogymnia enteromorpha
Abundance: 128, abundant.
Habitat: over trees, especially conifers, in coastal forests at lower elevations.
Abundance in North America/Range: Amphi-Beringian, Alaska to California.
Notes: baseline elemental analysis data from the Tongass National Forest is available for this lichen. Some of this material is probably *H. apinnata*.

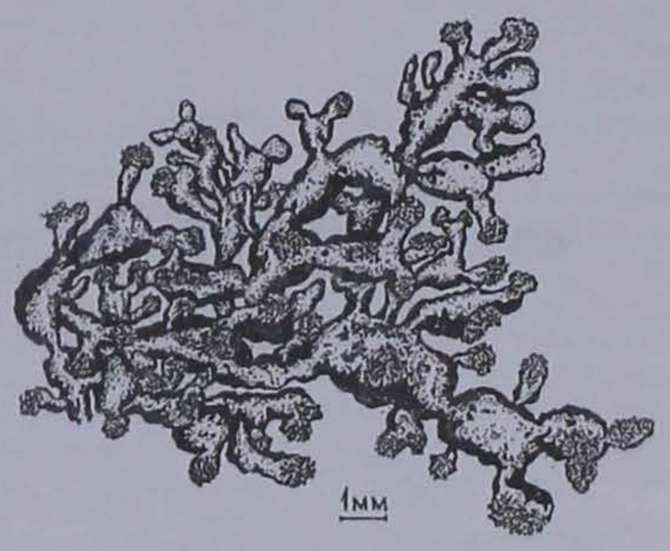


Hypogymnia enteromorpha

Hypogymnia inactiva (Krog) Ohlsson
Abundance: 37, common.
Habitat: over conifers, especially *Pinus contorta*, in open coastal forests.
Abundance in North America/Range: western North America, Alaska to California.

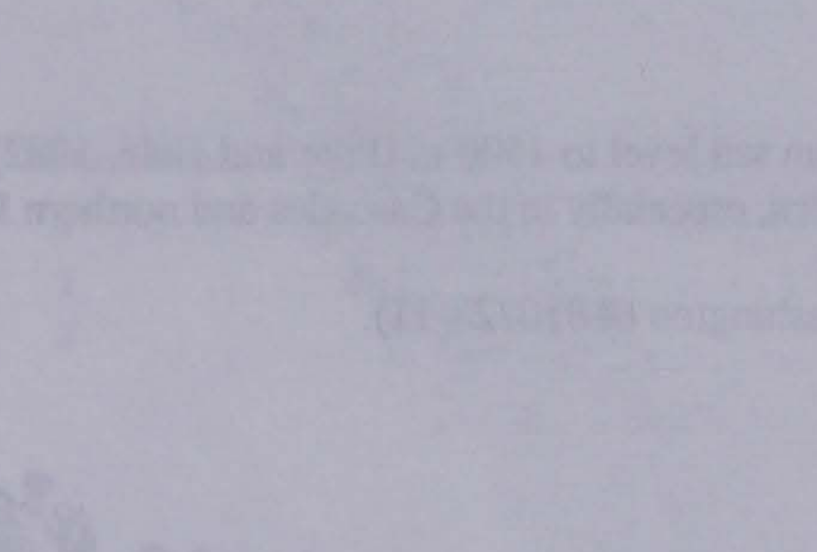
Hypogymnia occidentalis Pike
Abundance: 0, rare.
Habitat: over trees, especially lower boles in open to dense forests from sea level to 1500 m (Pike and Hale, 1982).
Abundance in North America/Range: common in western North America, especially in the Cascades and northern Rocky Mountains, from California north to Alaska. North American endemic.
Notes: collected at Burro Creek near Skagway by K. Glew at U. of Washington (# 810728-11).

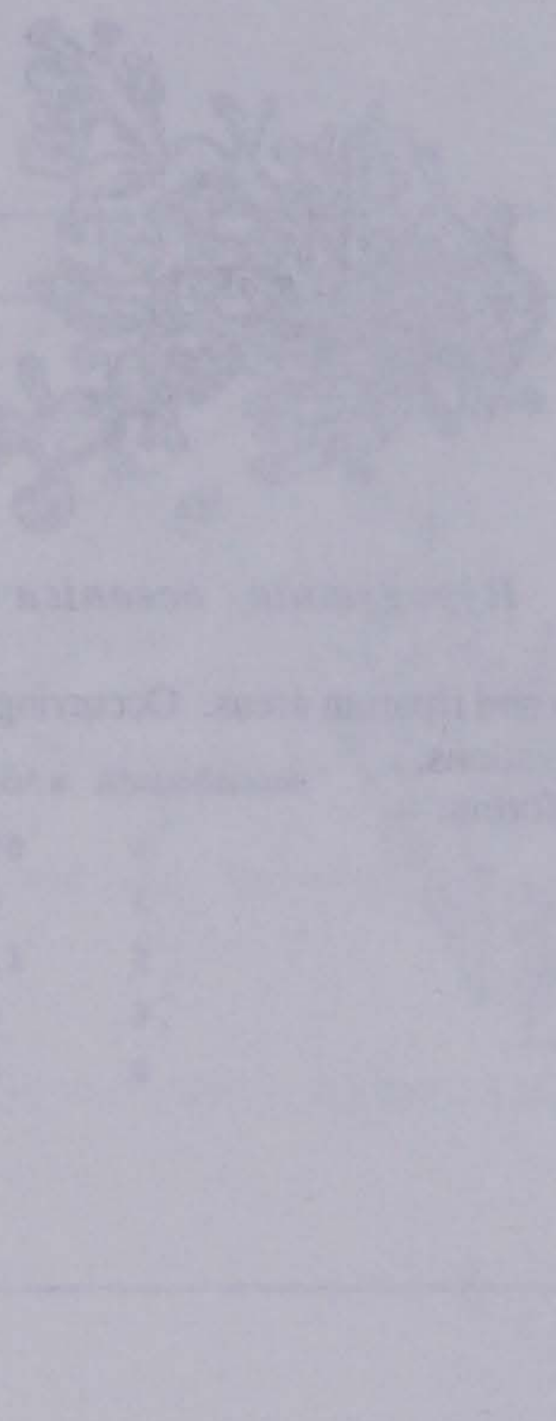
Hypogymnia oceanica Goward
Abundance: 43, common.
Habitat: particularly common on trunk and branches of open grown *Pinus contorta*; also corticolous on spruce and hemlock in other forest associations and on *Alnus* and *Malus* in the beach-forest ecotone. Low elevations.
Abundance in North America/Range: infrequent, recently described Pacific Northwest endemic (Goward, 1988). Western North America, Alaska to Washington.



Hypogymnia oceanica

Hypogymnia physodes (L.) Nyl.
Sensitivity: 0.6-7.1.
SO_2 Sensitivity: intermediate, 52-70/7.
Abundance: 16, common.
Habitat: over conifers and deciduous shrubs. Most common on trees along marine beach and riparian areas. Occurring sporadically in mixed conifer and shore pine open forests and other open stands. Low elevations.
Abundance in North America/Range: abundant; circumpolar arctic-alpine, Alaska to California.

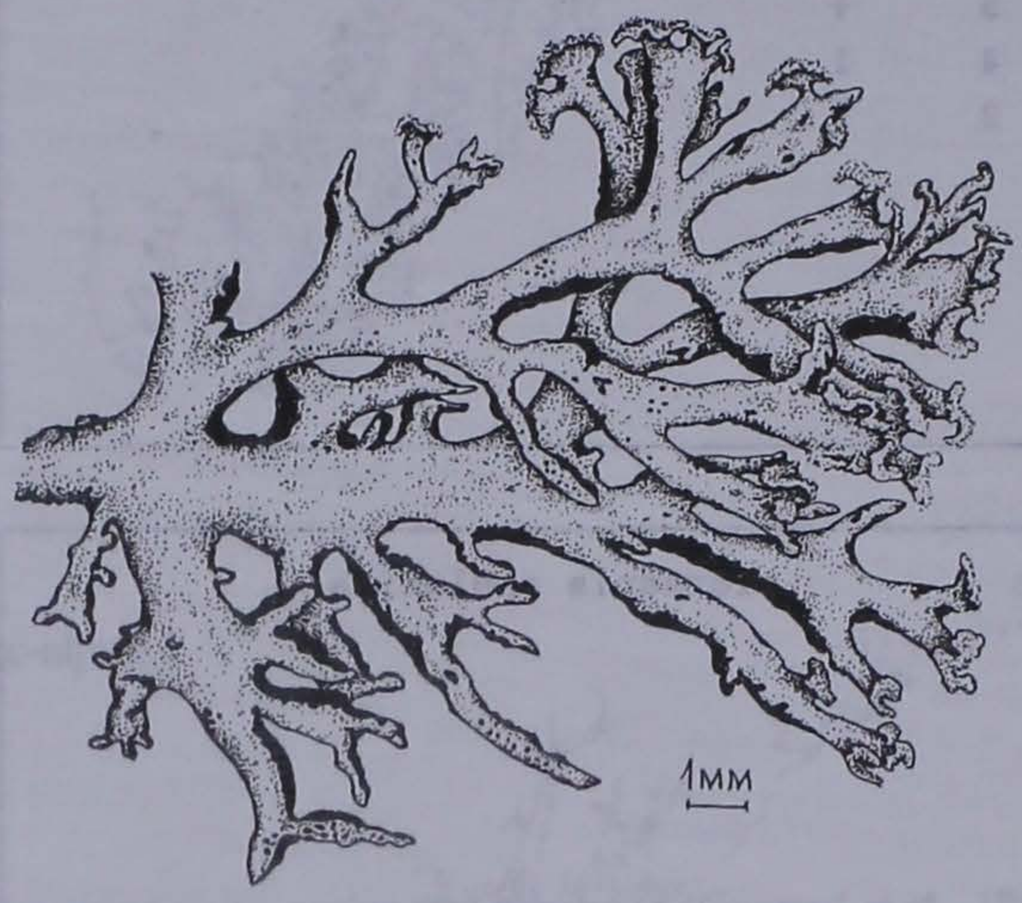




Hypogymnia tubulosa (Schaerer) Havaas
Sensitivity: 2-8.
SO_2 Sensitivity: sensitive, 10-30/-,8.
Abundance: 18, common.
Habitat: over conifers and deciduous shrubs in open forests throughout, particularly on beach or freshwater edges.
Abundance in North America/Range: common; incompletely circumpolar, Alaska to California.

Hypogymnia vittata (Ach.) Parr
Sensitivity: 8.
Abundance: 43, common.
Habitat: over conifers and deciduous shrubs in most forest types. Low elevation to subalpine.
Abundance in North America/Range: common-infrequent; circumpolar arctic-alpine. In North America mainly Pacific coastal (Alaska to Oregon) and south to the Appalachian Mtns. in the East.

Hypotrachyna sinuosa (Sm.) Hale
Abundance: 17, common.
Habitat: over trees and shrubs in open spruce and mixed spruce/deciduous forests at lower elevations.
Abundance in North America/Range: probably circumpolar, Alaska to Mexico.



Hypogymnia vittata

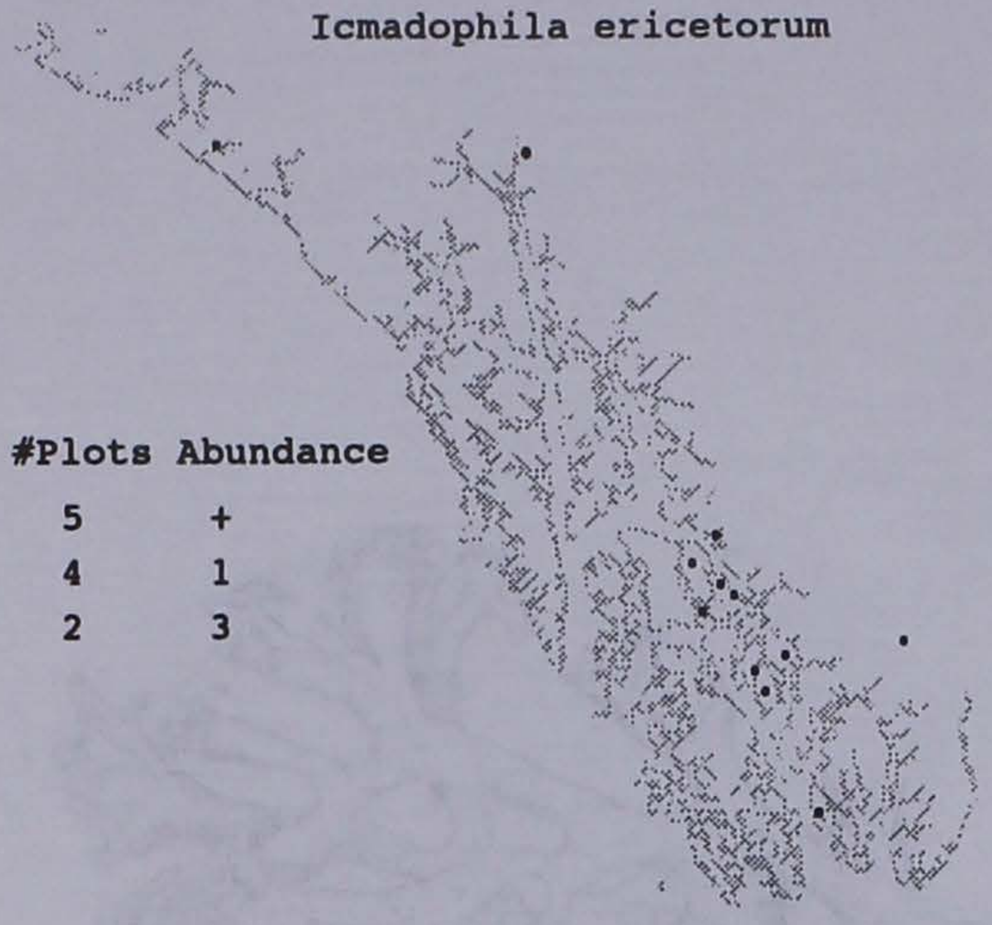
Icmadophila ericetorum (L.) Zahlbr.
Abundance: 11, abundant.
Habitat: on bark and lignum of conifers, particularly on bases of trunks and on rotting snags.
Abundance in North America/Range: common and widespread in Northern Hemisphere and New Zealand.
Notes: commonly occurs on soil outside of southeast Alaska.

Imshaugia aleurites (Ach.) S. F. Meyer
SO_2 sensitivity: intermediate, 10/65.
Abundance: 1, rare.
Habitat: over tree branches.
Abundance in North America/Range: common and widespread in North America, in western North America from Alaska south along the Rocky Mountains to New Mexico. Also known from Europe and Asia.

Ionaspis epulotica (Ach.) Arnold
Abundance: 2, ?
Habitat: on rock in mainland alpine, at least sometimes under water.
Abundance in North America/Range: arctic-alpine species known from British Isles, montane Europe, Siberia, Canada and Alaska.
Notes: on moist calcareous rocks or acid rocks subject to basic flushing (Purvis et al.,1992).

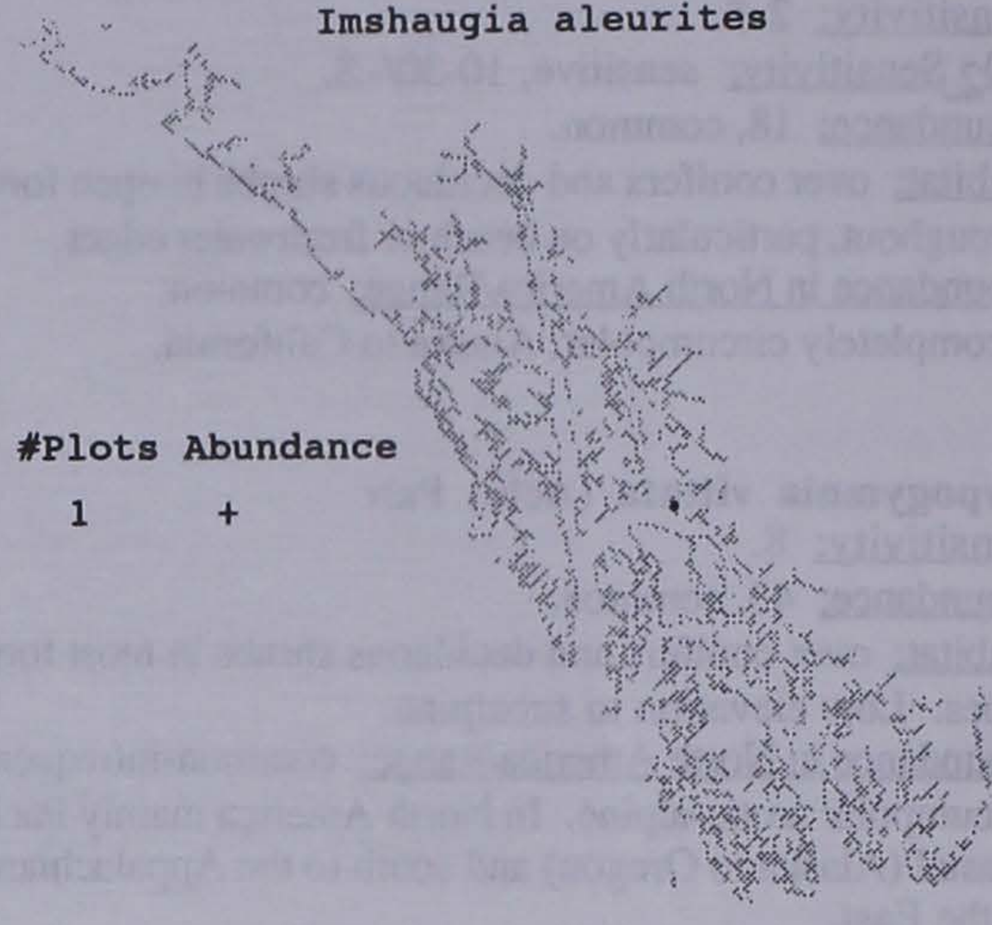
Lecanora allophana Nyl.
Abundance: 0, ?
Habitat: on trees or old wood, rarely on rocks or over mosses (Fink, 1935).
Abundance in North America/Range: widespread throughout the United States and Canada and widely distributed outside North America.
Notes: reported from Zarembo Island (Herre, 1919).

Icmadophila ericetorum



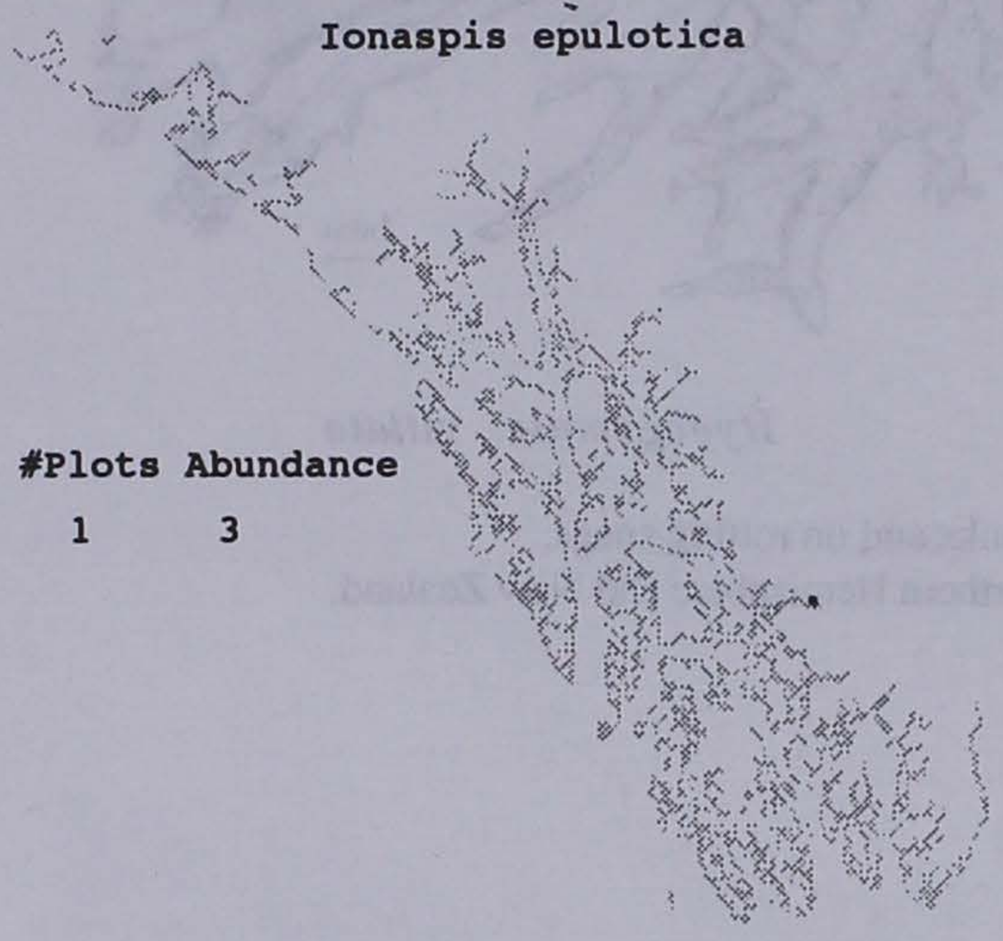
#Plots	Abundance
5	+
4	1
2	3

Imshaugia aleurites



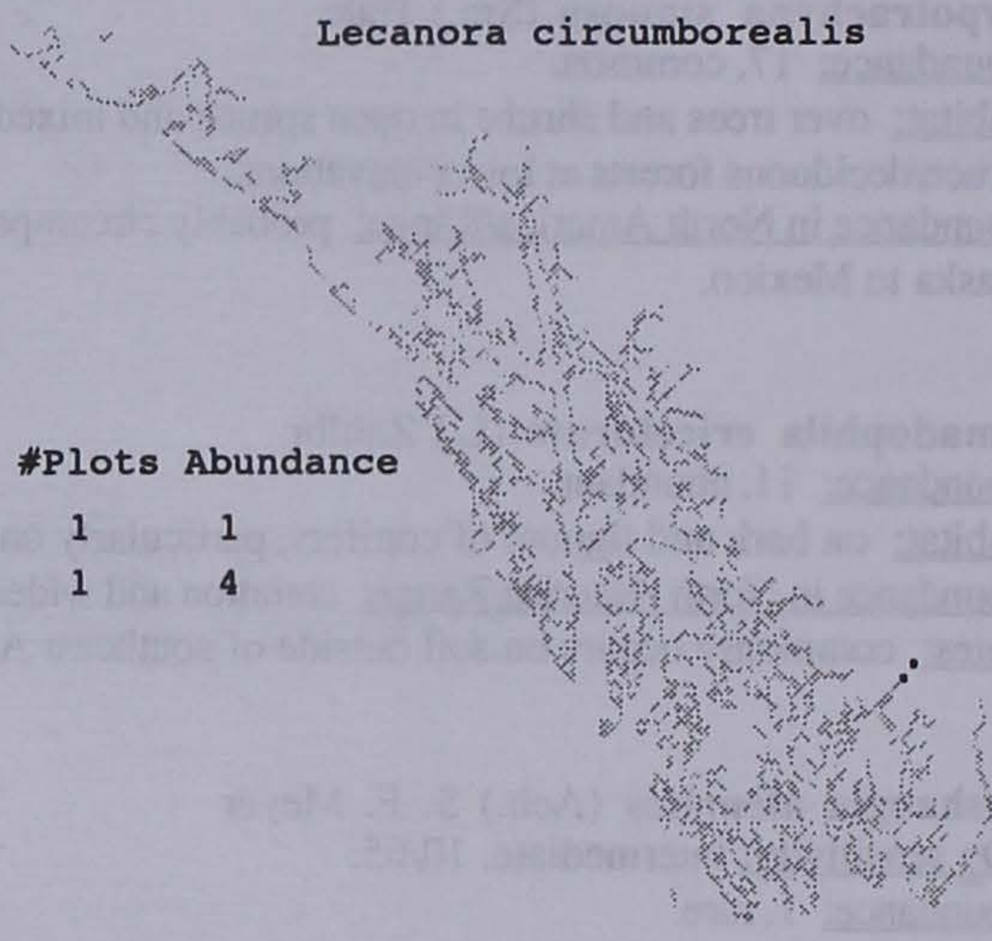
#Plots	Abundance
1	+

Ionaspis epulotica



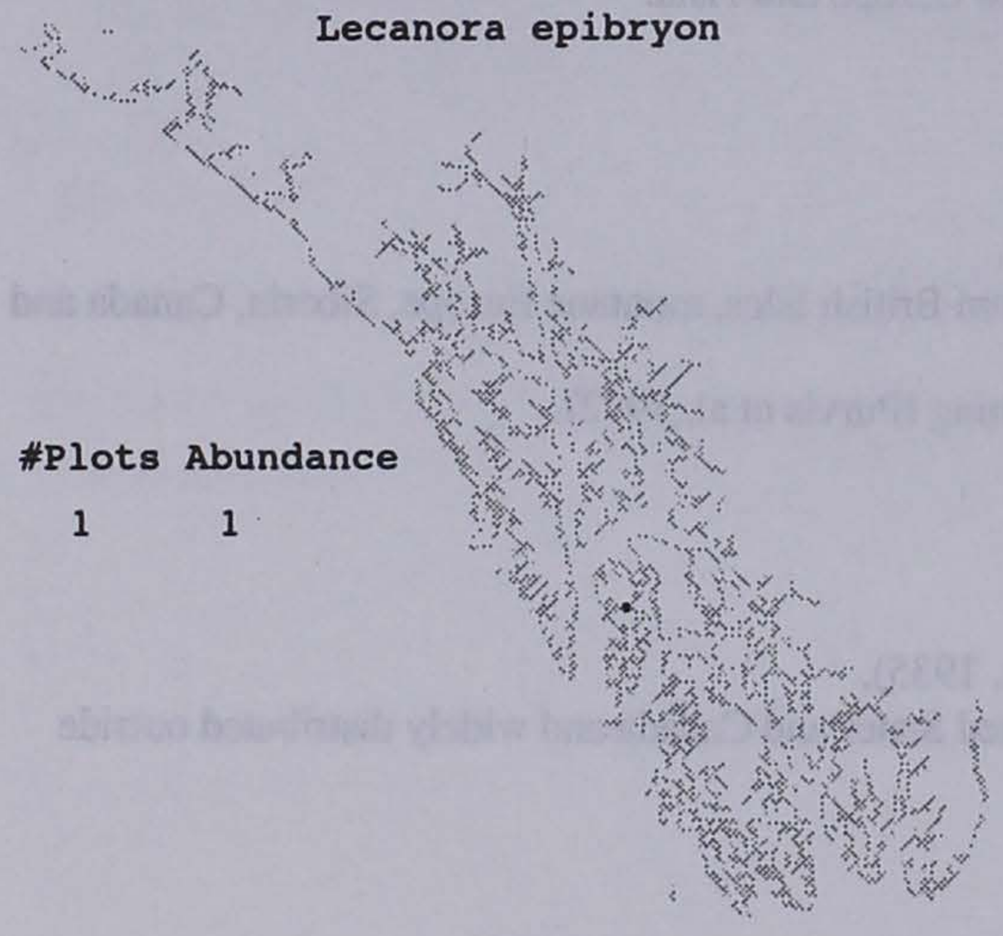
#Plots	Abundance
1	3

Lecanora circumborealis



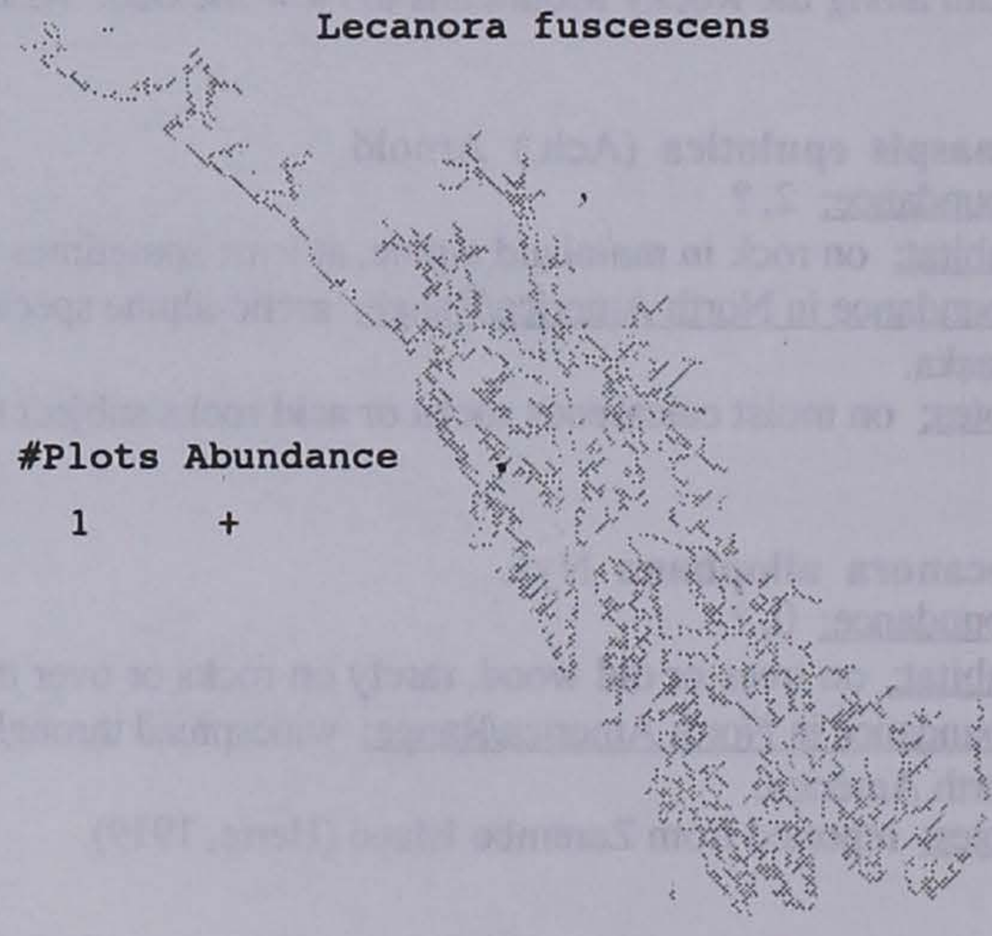
#Plots	Abundance
1	1
1	4

Lecanora epibryon



#Plots	Abundance
1	1

Lecanora fuscescens



#Plots	Abundance
1	+

Lecanora argentata (Ach.) Malme
Abundance: 0, ?
Habitat: on trees (Fink, 1935).
Abundance in North America/Range: widespread in North America and elsewhere.
Notes: reported from Glacier Bay (Cummings, 1904).

Lecanora campestris (Schaerer) Hue
Abundance: 0, ?
Habitat: on calcareous and nutrient-enriched siliceous rocks (Purvis et al., 1992).
Abundance in North America/Range: common; Europe and North America.
Notes: reported from Mendenhall Valley (McCullough, 1965).

Lecanora circumborealis Brodo & Vitik.
Abundance: 2, ?
Habitat: on bark of deciduous trees and shrubs, low elevations.
Abundance in North America/Range: common; circumboreal.

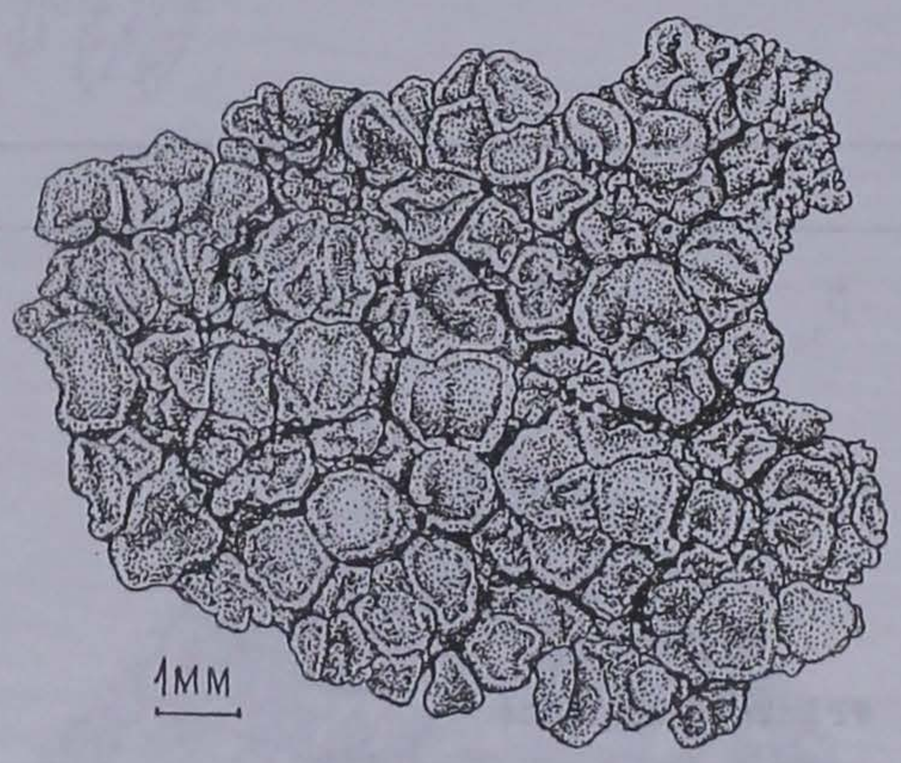
Lecanora epibryon (Ach.) Ach.
Abundance: 2, ?
Habitat: on rock. Low elevation to (alpine?).
Abundance in North America/Range: abundant; circumpolar arctic-alpine.

Lecanora fuscescens (Sommerf) Nyl. **in** Norrlin
Abundance: 1, ?
Habitat: on beach edge *Alnus rubra* . In British Columbia also occurring in the alpine and subalpine (Goward et al., 1992).
Abundance in North America/Range: infrequent; circumpolar boreal.

Lecanora grantii Magn.
Abundance: 2, ?
Habitat: on bark or wood along marine beaches.
Abundance in North America/Range: coastal arctic and boreal species known from North America and Europe.

Lecanora leptacina Sommerf.
Abundance: 1, ?
Habitat: single collection over moss on rock in high mainland alpine (Cosmos Peak).
Abundance in North America/Range: rare; arctic-alpine, circumpolar in the Northern Hemisphere.

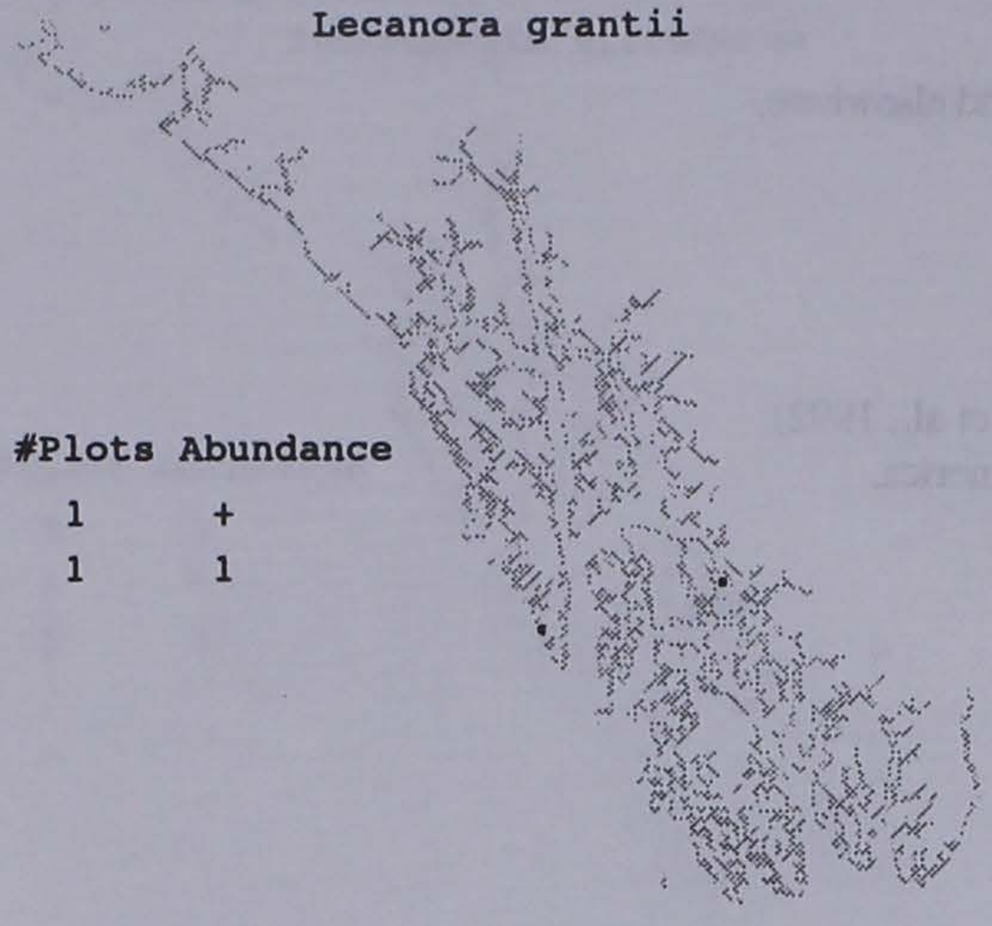
Lecanora polytropa (Hoffm.) Rabenh.
Abundance: 4, common.
Habitat: on rock in alpine and subalpine.
Abundance in North America/Range: common; circumpolar arctic-alpine and boreal.



Lecanora polytropa

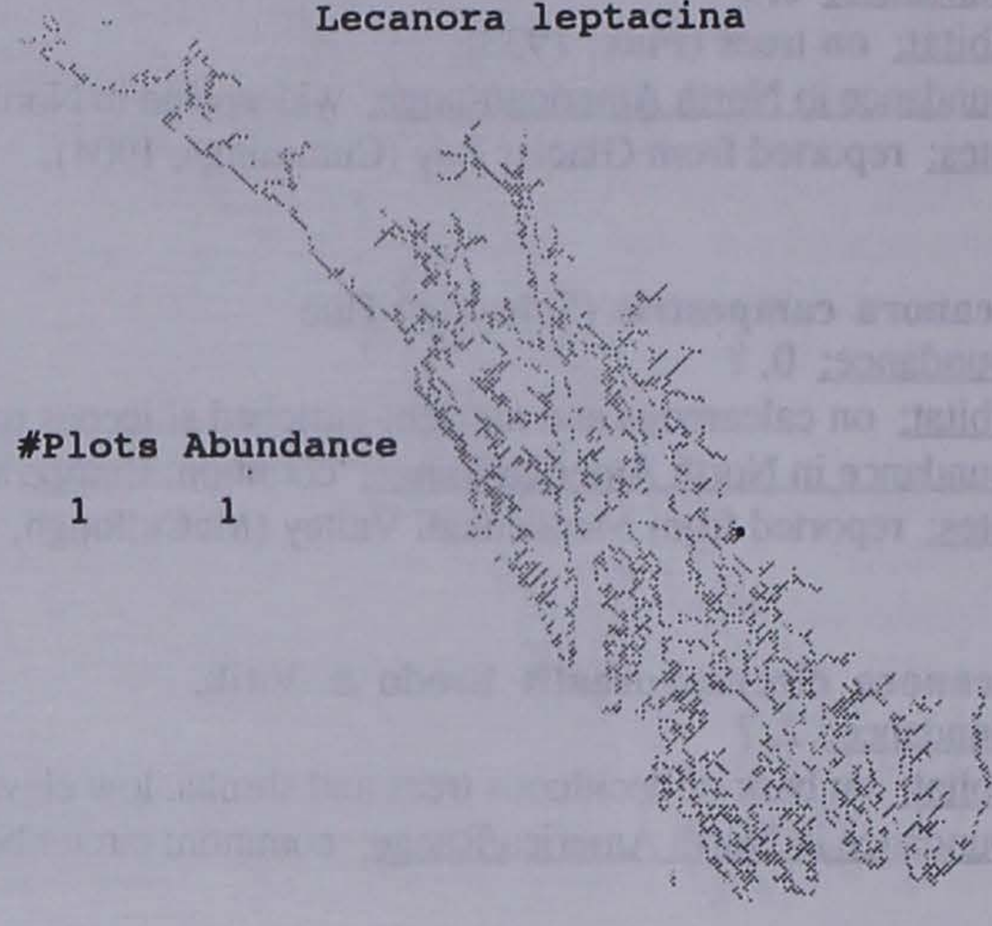
Lecanora pulicaris (Pers.) Ach.
Abundance: 0, ?
Habitat: on bark and wood of coniferous and deciduous trees, especially branches and twigs (Purvis et al., 1992).
Abundance in North America/Range: circumboreal in the Northern Hemisphere.
Notes: reported from a Juneau icefield nunatak (McCullough, 1965).

Lecanora grantii



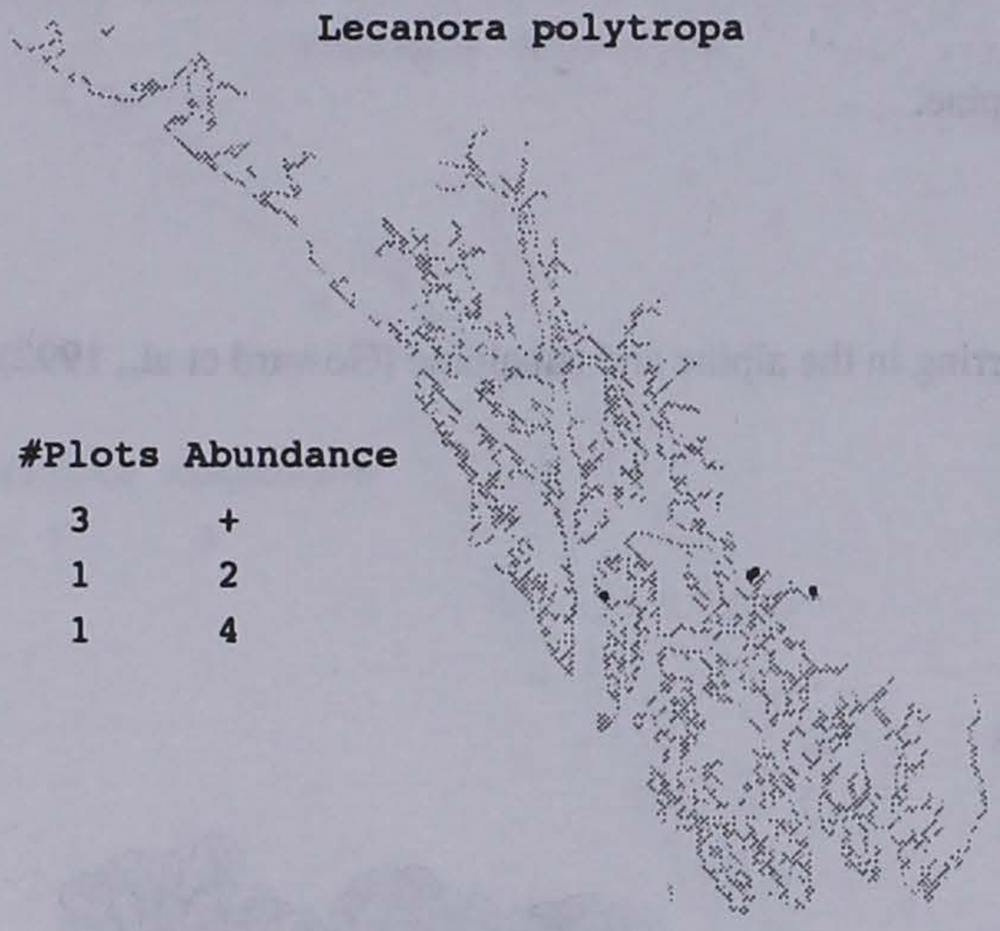
#Plots	Abundance
1	+
1	1

Lecanora leptacina



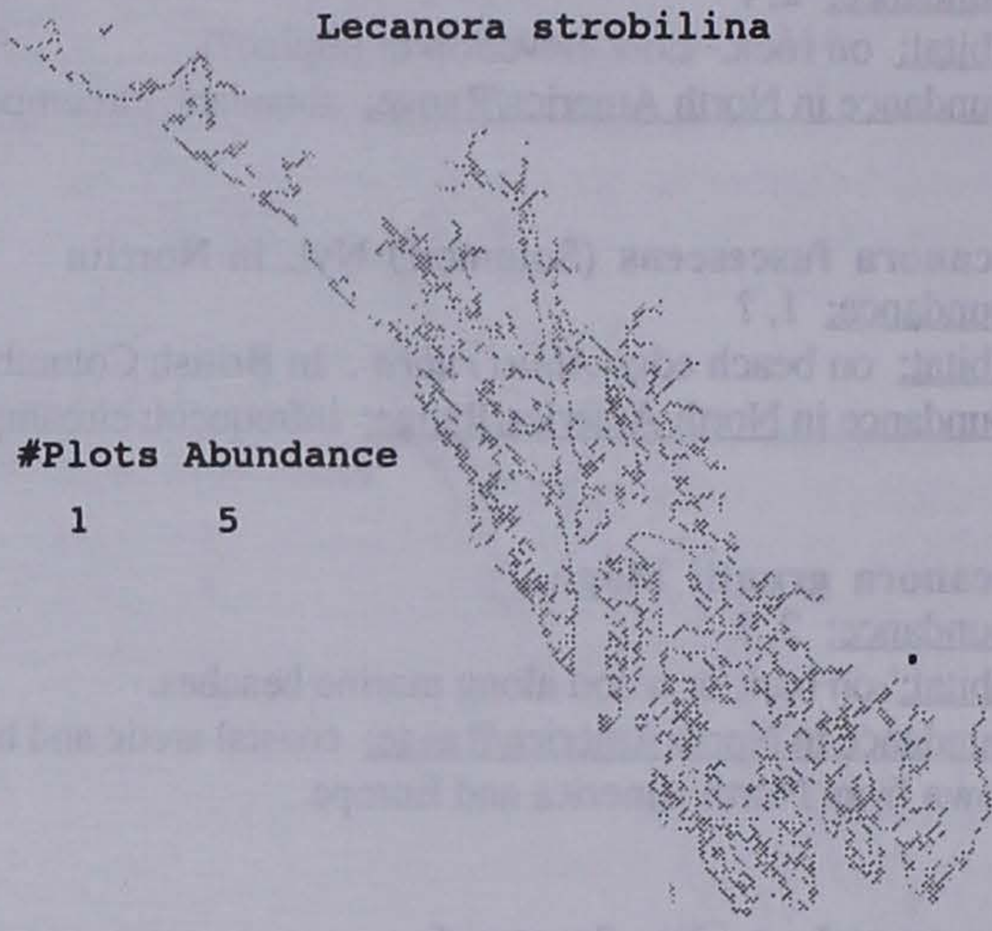
#Plots	Abundance
1	1

Lecanora polytropa



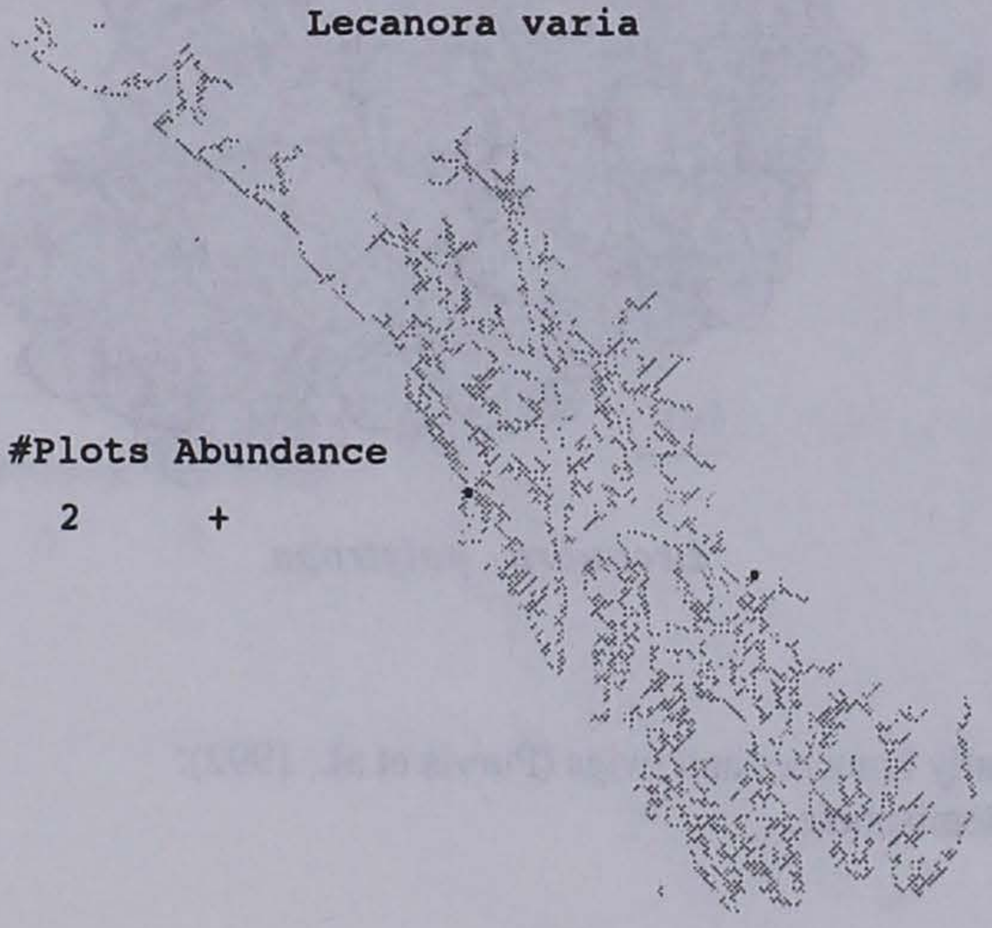
#Plots	Abundance
3	+
1	2
1	4

Lecanora strobilina



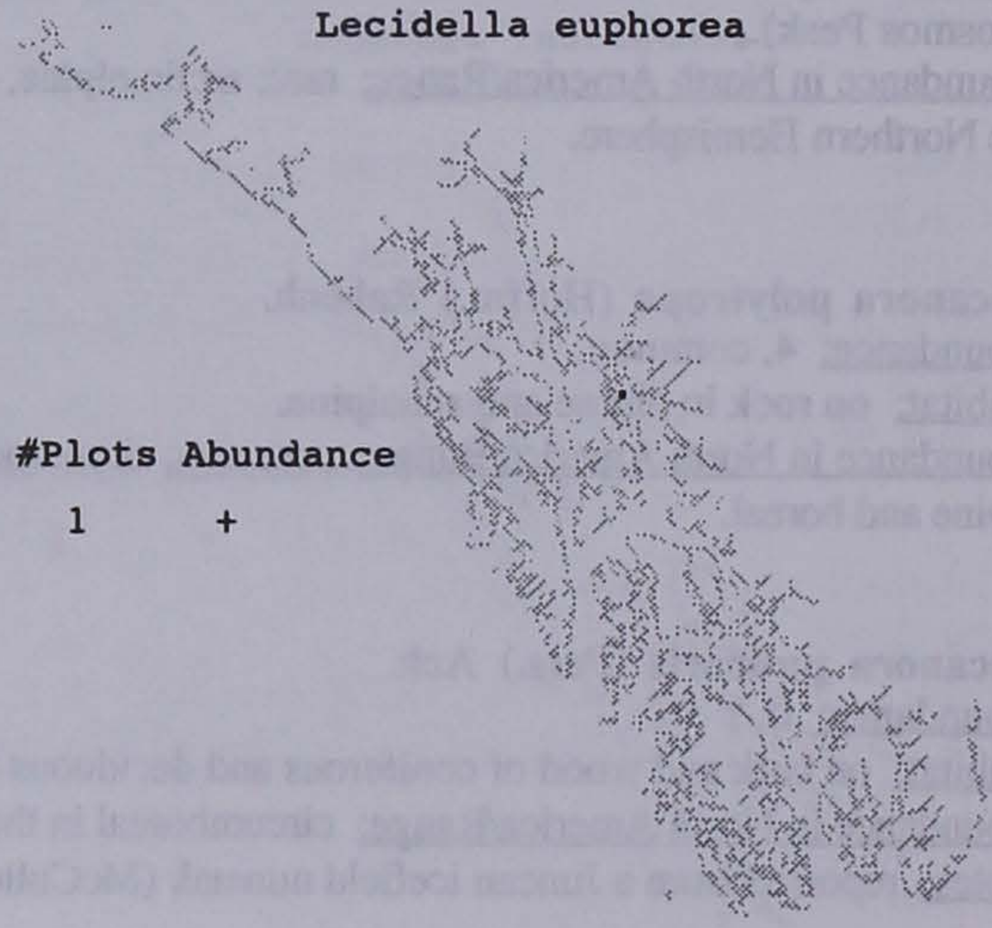
#Plots	Abundance
1	5

Lecanora varia



#Plots	Abundance
2	+

Lecidella euphorea



#Plots	Abundance
1	+

Lecanora strobilina (Sprengel) Kieffer
Abundance: 1, ?
Habitat: single collection from bark of *Alnus* on the mainland.
Abundance in North America/Range: common in eastern North America but rare in western North America. Also known from Mexico, Europe, and North Africa.
Notes: very rare in Europe. Also expected on bark of conifers.

Lecanora subrugosa Nyl.
Sensitivity: 6-7.
SO_2 Sensitivity: intermediate, 30-80/-.
Abundance: 1, ?
Habitat: on bark of *Alnus*.
Abundance in North America/Range: hemiboreal and temperate, Europe and North America.

Lecanora varia (Hoffm.) Ach.
Sensitivity: 4-5.7.
Abundance: 1, ?
Habitat: on bark of *Alnus*.
Abundance in North America/Range: circumboreal boreal and temperate.

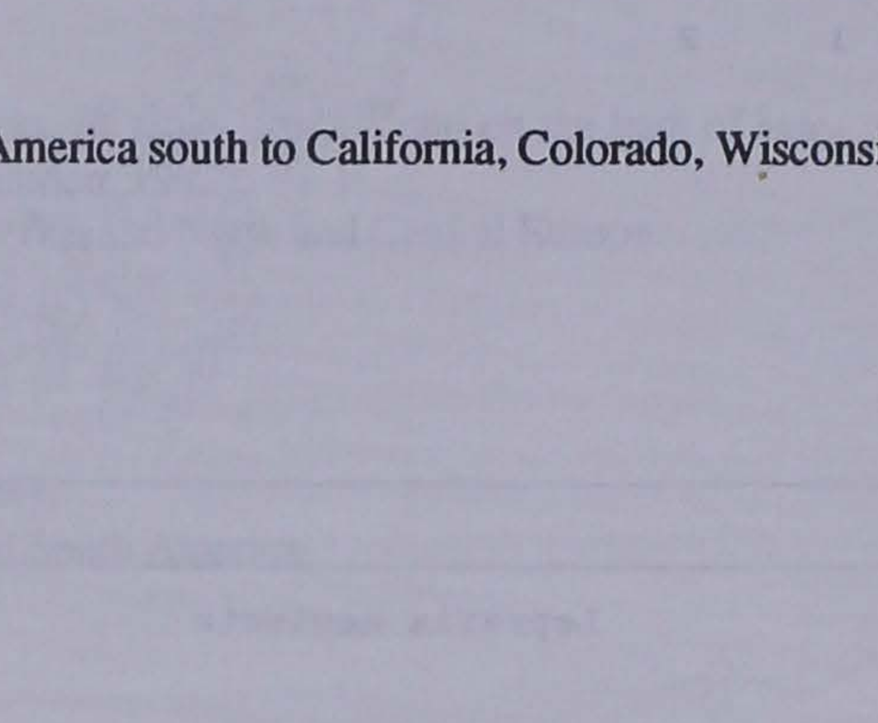
Lecidella euphorea (Flörke) Hertel
Sensitivity: 4-8.
Abundance: 1, ?
Habitat: on dead branch *Alnus sinuata* along the beach.
Abundance in North America/Range: circumpolar, arctic, boreal and temperate regions.

Lecidella stigmatea (Ach.) Hertel & Leuck.
Abundance: 2, ?
Habitat: on rock.
Abundance in North America/Range: circumpolar arctic-alpine, in North America south to California, Colorado, Wisconsin and Quebec.

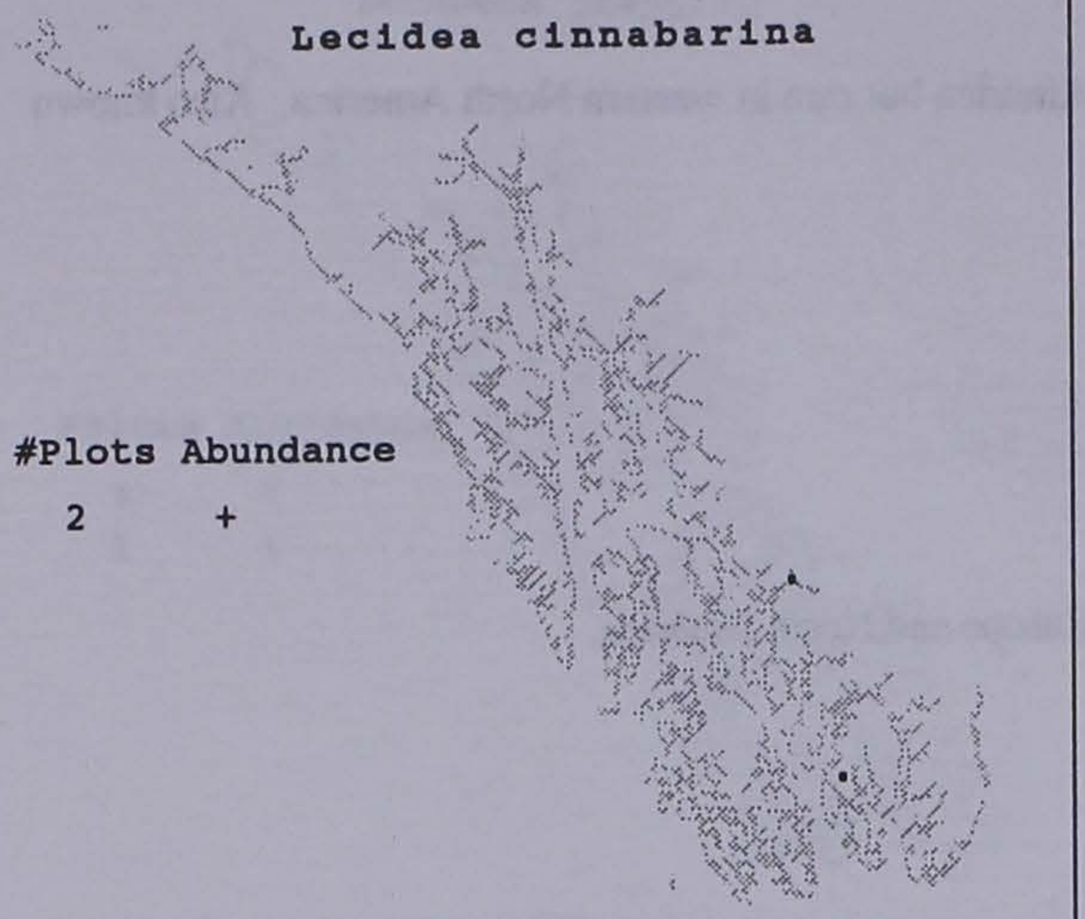
Lecidea atromarginata Magn.
Abundance: 0, ?
Habitat: on calcareous rock (Thomson, 1979).
Abundance in North America/Range: circumpolar, arctic.
Notes: reported from Mendenhall Valley (McCullough, 1965).

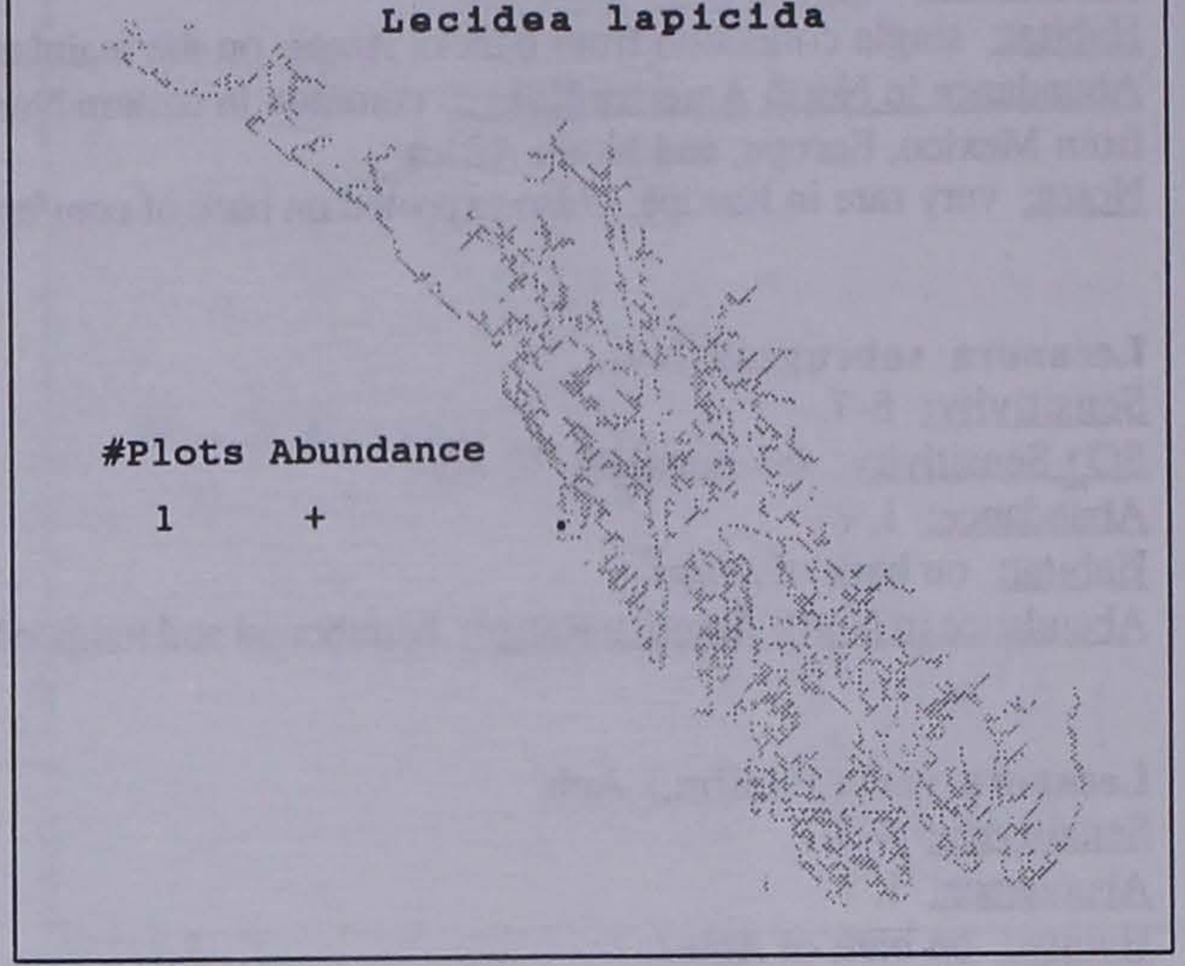
Lecidea cinnabarina Sommerf.
SO_2 Sensitivity: sensitive, 26-34/34-52.
Abundance: 2, common.
Habitat: on fine branches of conifers in most low elevation forested areas.
Abundance in North America/Range: North America with disjunct populations in Greenland and Europe.

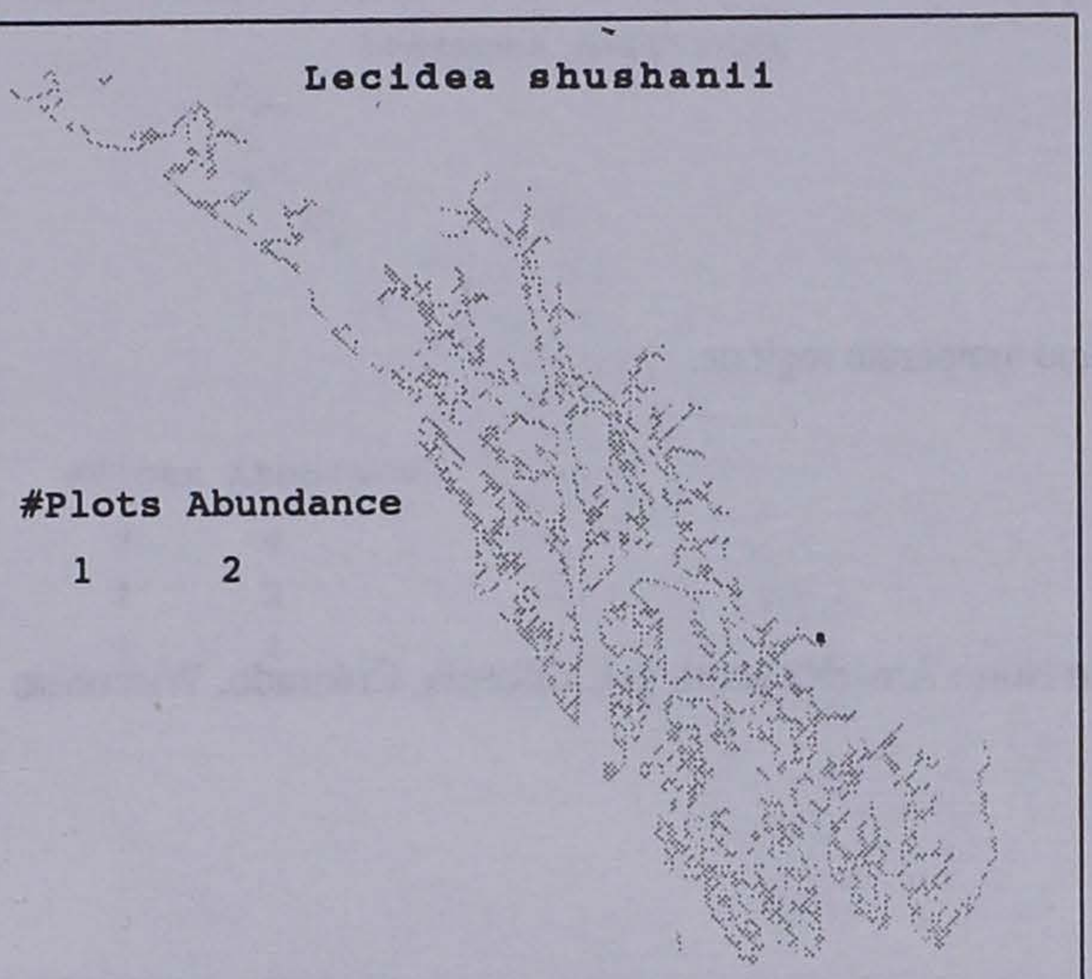
Lecidea lapicida (Ach.) Ach.
Abundance: 1, ?
Habitat: single collection from rocks near a stream outlet at Baranof Lake where it was locally abundant and probably intermittently submerged .
Abundance in North America/Range: common; circumpolar arctic-alpine

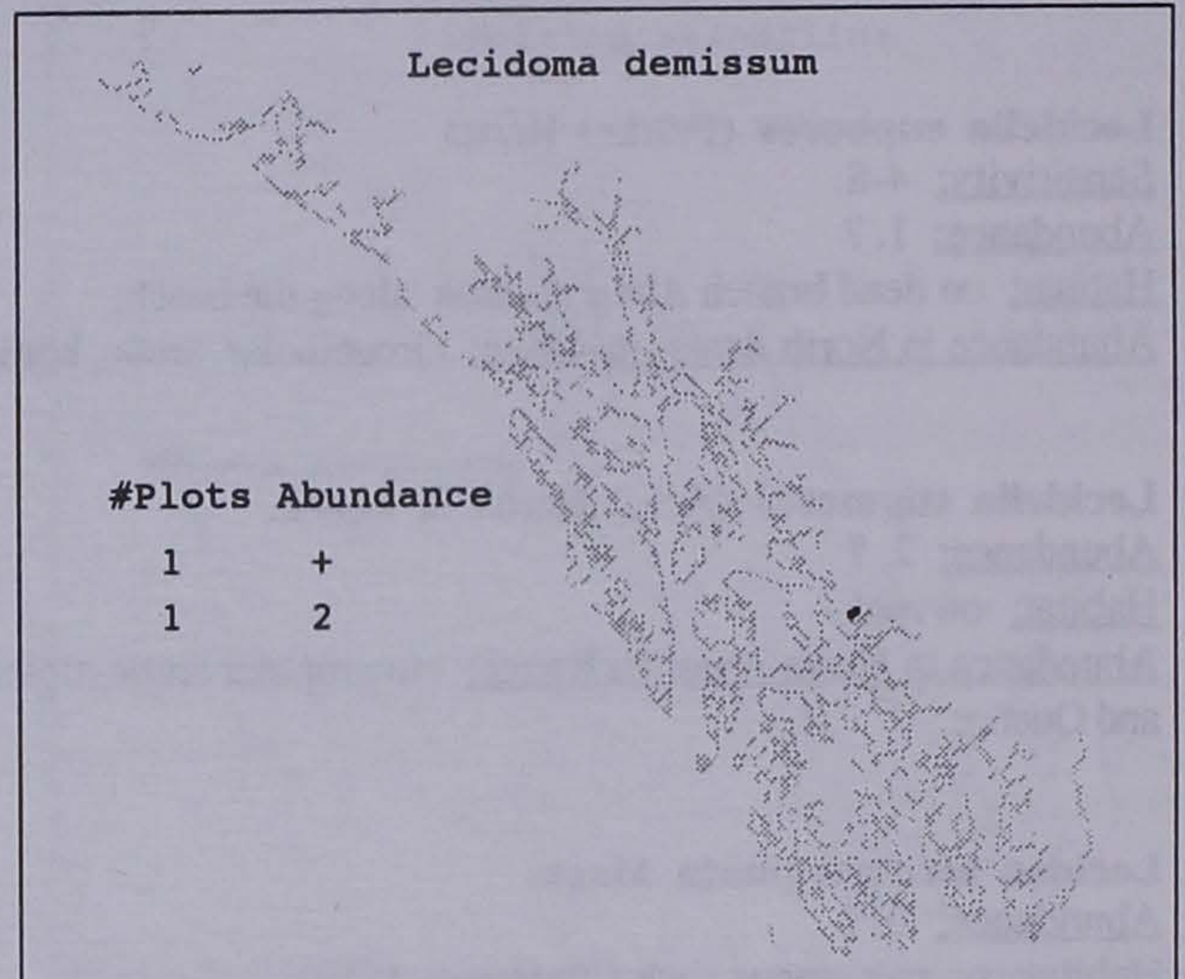


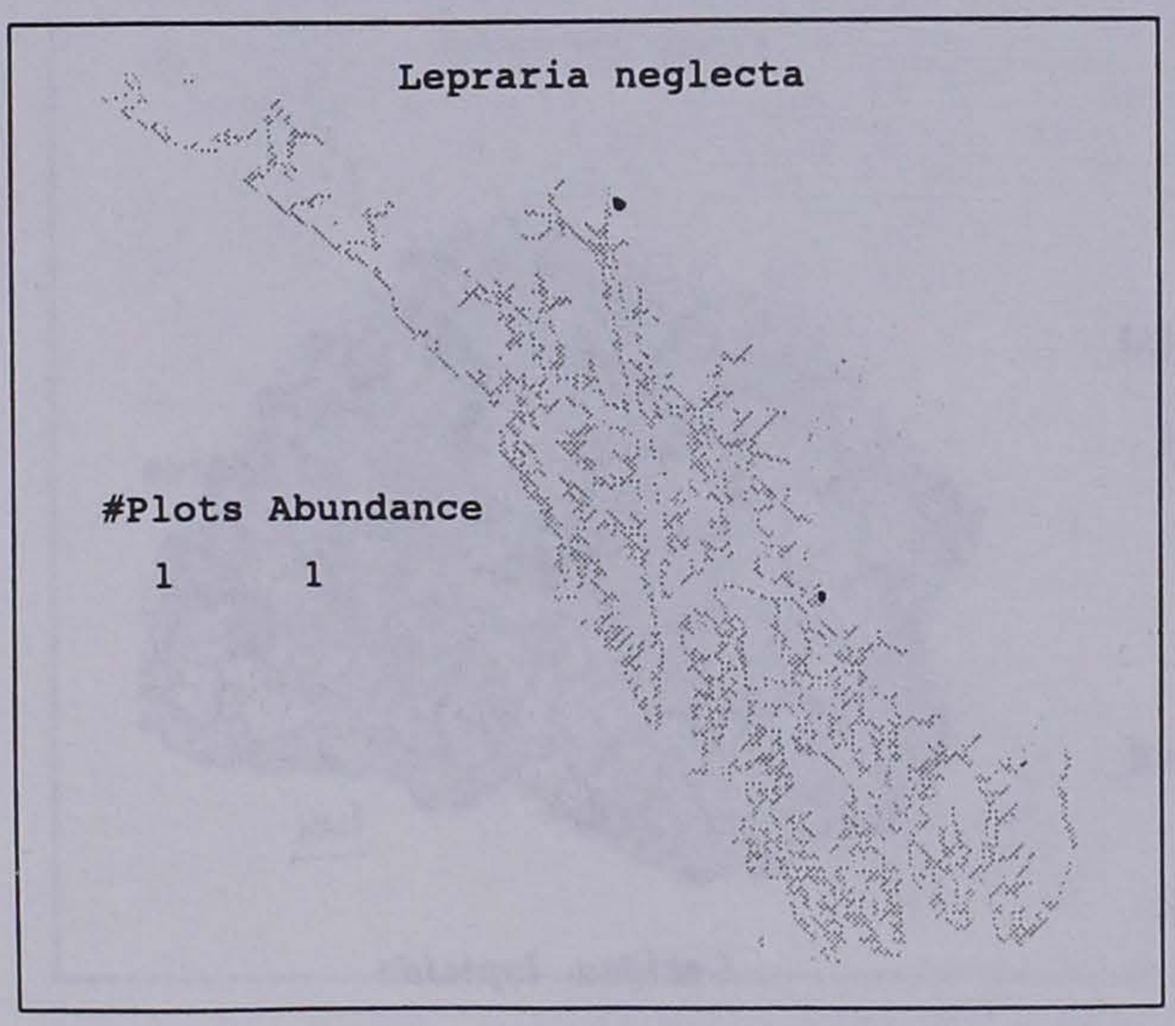
Lecidea lapicida

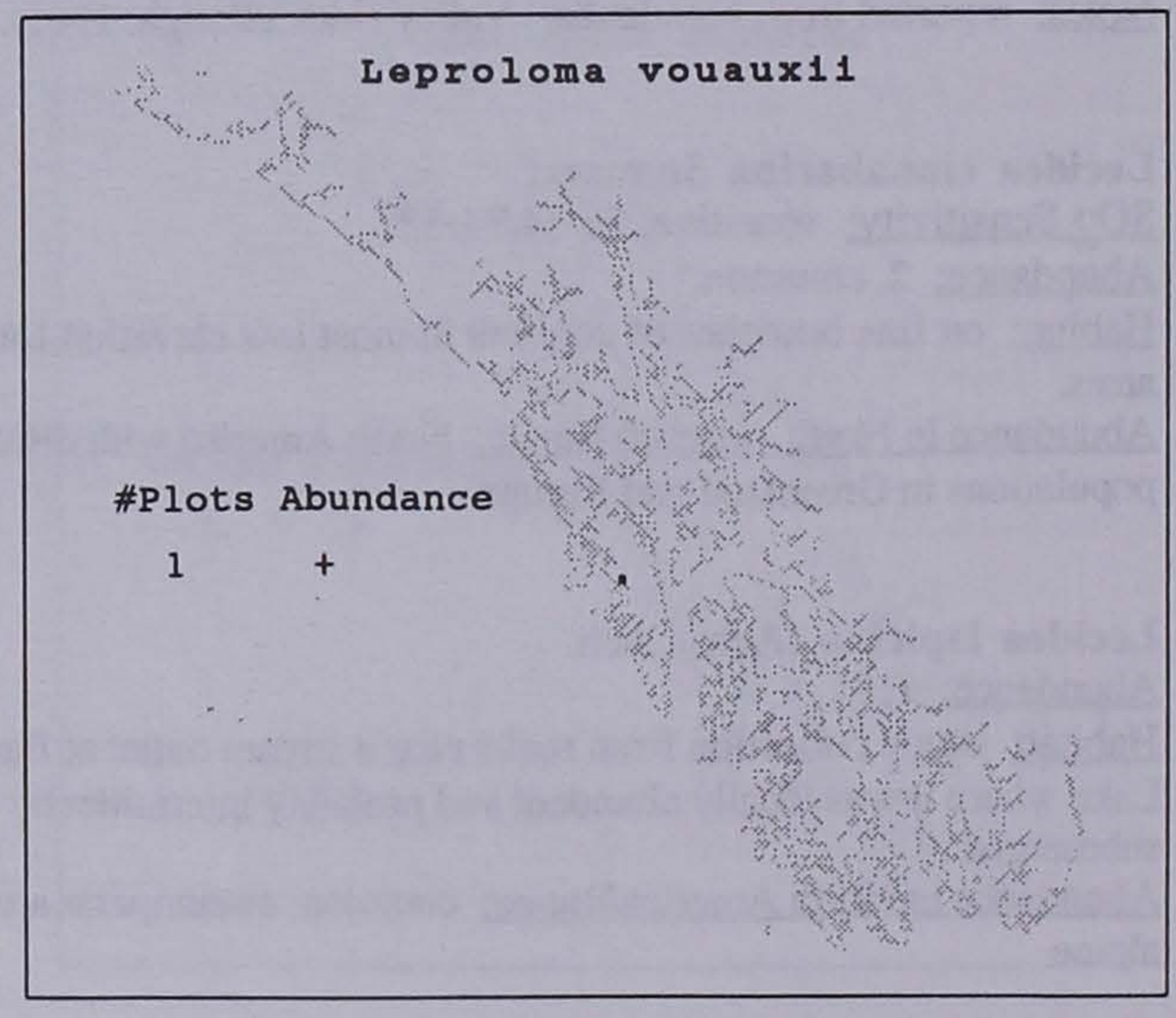

Lecidea cinnabarina
#Plots Abundance
2 +


Lecidea lapicida
#Plots Abundance
1 +


Lecidea shushanii
#Plots Abundance
1 2


Lecidoma demissum
#Plots Abundance
1 +
1 2


Lepraria neglecta
#Plots Abundance
1 1


Leproloma vouauxii
#Plots Abundance
1 +

Lecidea silacea (Hoffm.) Ach.
Abundance: 0, ?
Habitat: on rocks in a marine bay.
Abundance in North America/Range: cool temperate and arctic North America, Europe, Nepal.
Notes: reported from Prince of Wales Island (Herre, 1919). There is a rust colored morph of *L. lapicida* which can be misidentified as L. silacea. This lichen has undergone several taxonomic revisions since 1919 and its inclusion in this inventory is tentative.

Lecidea shushanii Thomson
Abundance: 1, ?
Habitat: single collection from rocks in high mainland alpine.
Notes: very closely related and possibly identical to *Tephromela aglaea* (Hertel & Rambold, 1988).

Lecidoma demissum (Rutstr.) G. Schneider & Hertel
Abundance: 2, common?
Habitat: on rock in alpine and subalpine.
Abundance in North America/Range: common; circumpolar arctic-alpine.

Lepraria finkii (B. de Lesd. in Hue) R. C. Harris
Sensitivity: tolerant of sulfur dioxide and metal pollution and occurs in urban and mining sites (Laundon, 1992).
Abundance: 1, ?
Habitat: on bases of trees and shady rocks.
Abundance in North America/Range: abundant; the most common and widespread of all the *Lepraria* species, known from North America, Europe, Asia, Africa, Australia and New Zealand.
Notes: collected from Klondike Gold Rush National Historic Park. The name of this lichen has been changed since Egan's last update (1992) to **L. lobficans** Nyl. (Laundon, 1992).

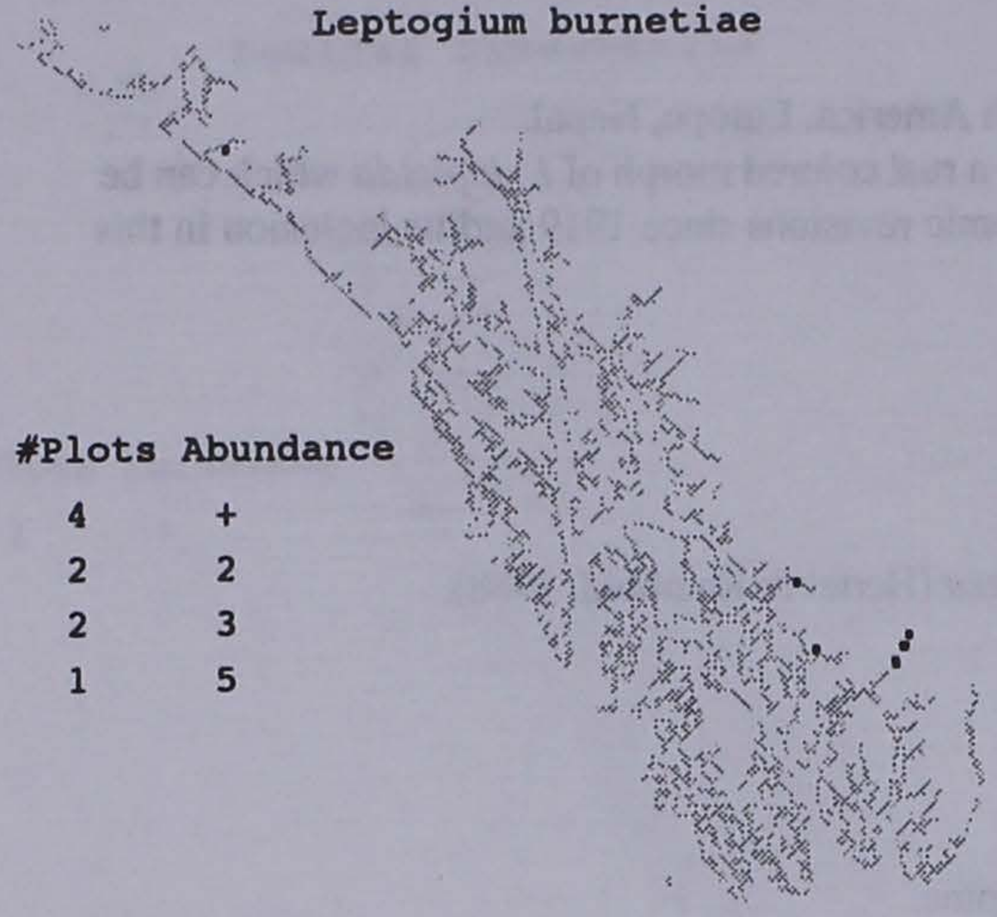
Lepraria neglecta (Nyl.) Lettau
Abundance: 2, ?
Habitat: on rock. Also known to occur on moss cushions on sunny acid rocks, on stony ground, and on the bark of low alpine shrubs, particularly on open mountain summits and in snow beds (Laundon, 1992).
Abundance in North America/Range: common; arctic-alpine from North America and North and Central Europe.

Leprocaulon subalbicans (Lamb) Lamb & Ward
Abundance: 0, ?
Habitat: on soil or on soil over rocks or in crevices of rocks (Thomson, 1984).
Abundance in North America/Range: western North America, Greenland, and South America.
Notes: reported from Mt. Roberts near Juneau (Krog, 1968).

Leproloma cf. cacuminum (Massal.) Laundon
Abundance: 1, ?
Habitat: on acid, mossy rocks, and acid bark, soil and other lichens (Purvis, et al., 1992).
Abundance in North America/Range: temperate-arctic, Northern and Southern Hemispheres.

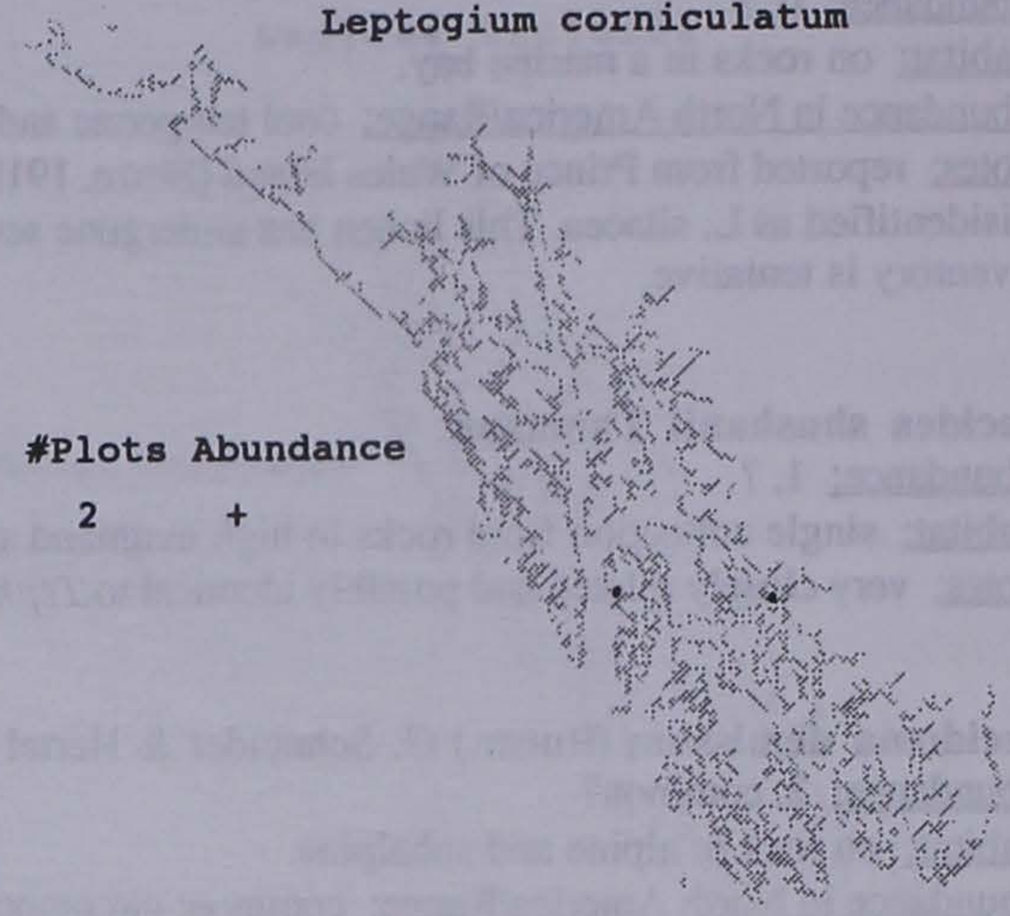
Leproloma diffusum v. chrysodetoides Laundon
Abundance: 1, ?
Habitat: single collection from rocky cliff, high elevation mainland.
Abundance in North America/Range: western North America and Europe.
Notes: in Europe this species occurs on mosses over, or on, calcareous and acid rock (Purvis, et al. 1992).

Leptogium burnetiae



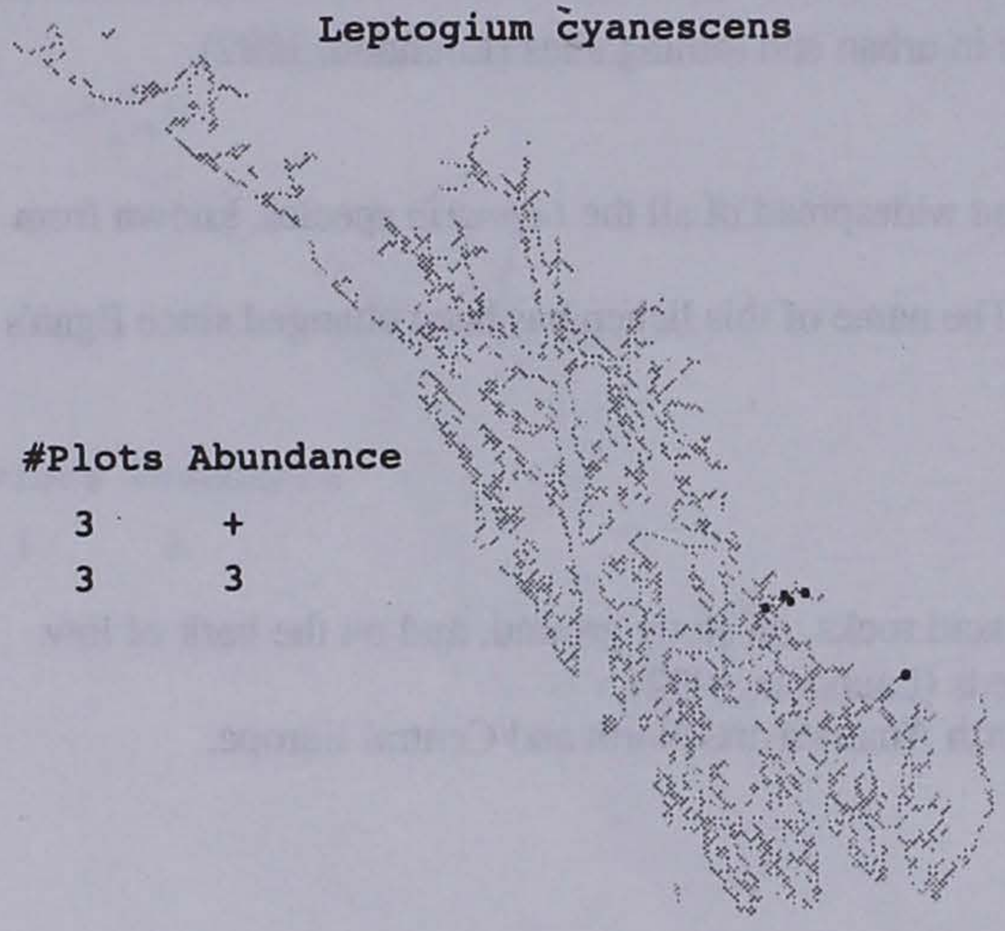
#Plots	Abundance
4	+
2	2
2	3
1	5

Leptogium corniculatum



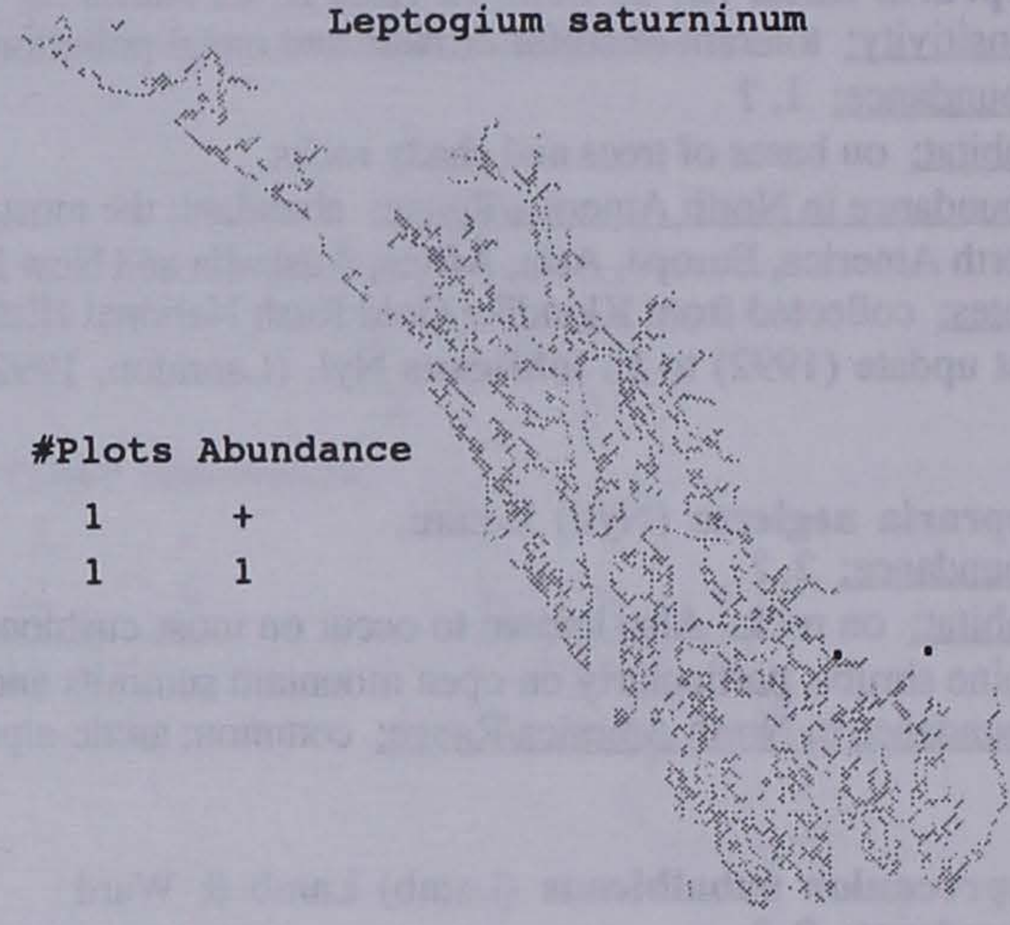
#Plots	Abundance
2	+

Leptogium cyanescens



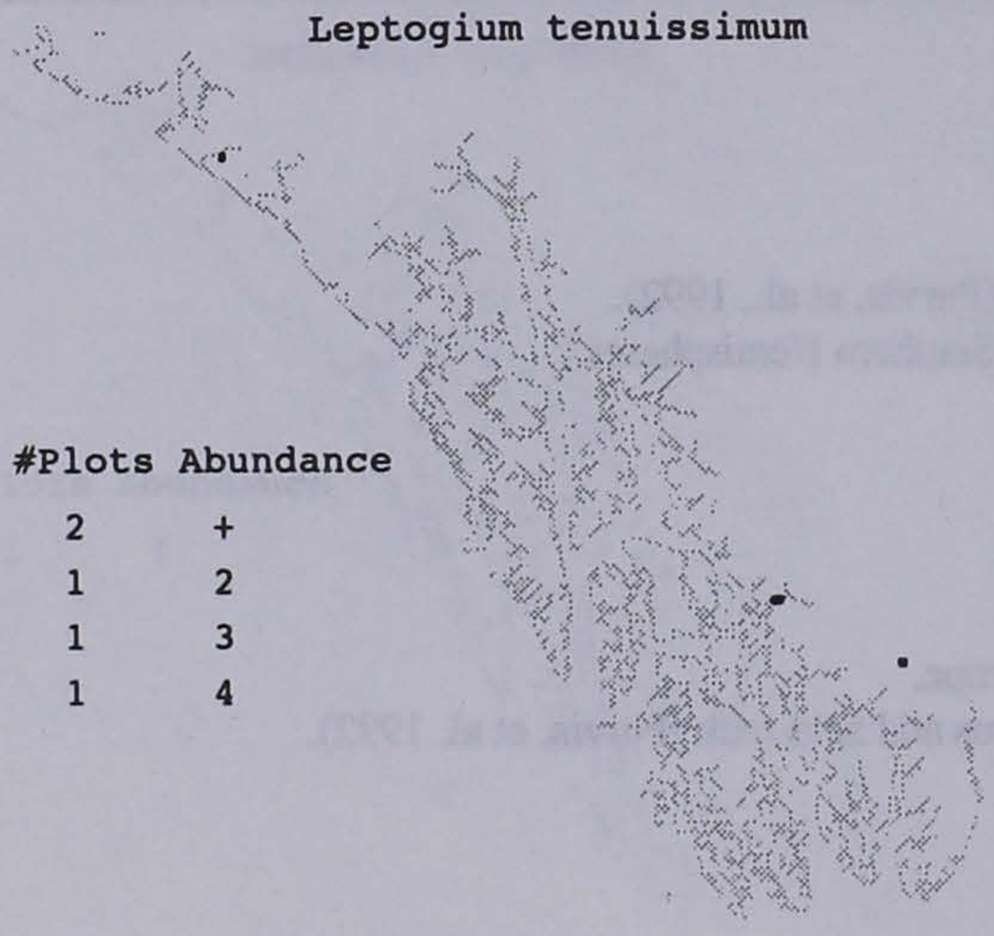
#Plots	Abundance
3	+
3	3

Leptogium saturninum



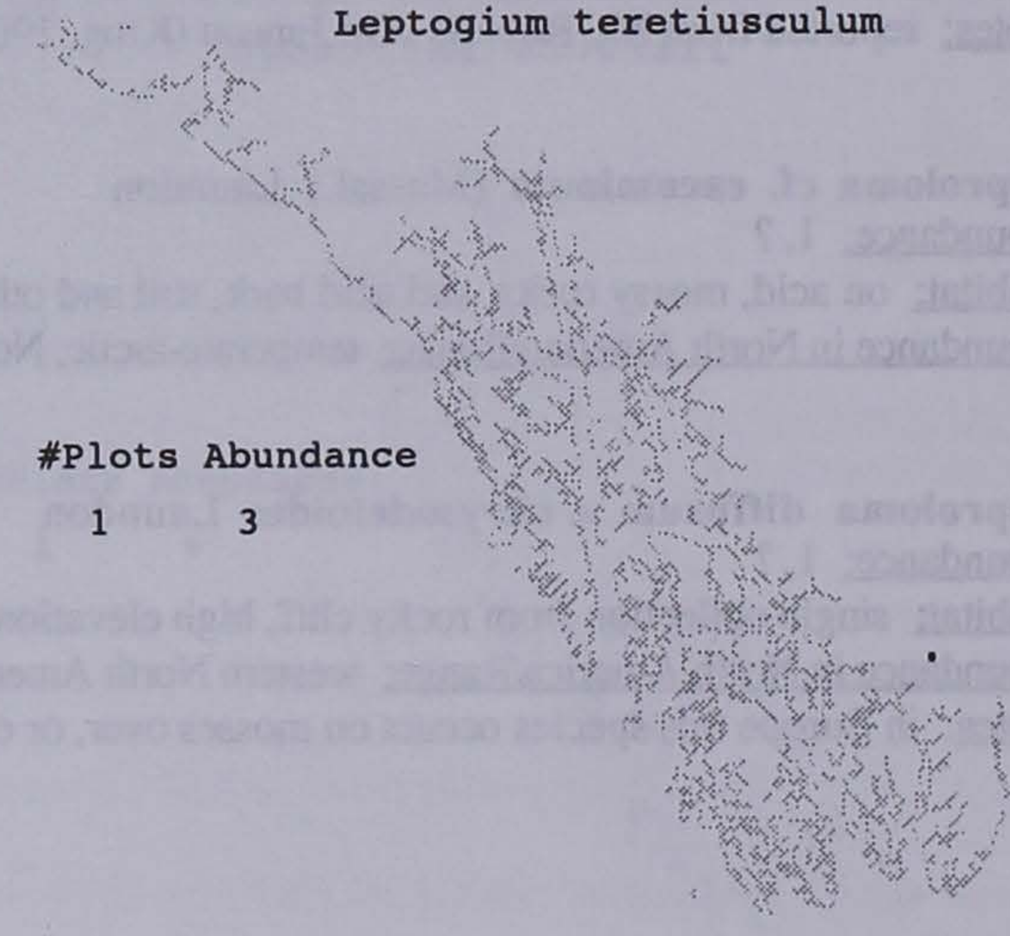
#Plots	Abundance
1	+
1	1

Leptogium tenuissimum



#Plots	Abundance
2	+
1	2
1	3
1	4

Leptogium teretiusculum



#Plots	Abundance
1	3

Leproloma vauauxii (Hue) Laundon
Abundance: 2, ?
Habitat: on rock near low elevation road cut. Alpine and subalpine in British Columbia (Goward et al., 1992).
Abundance in North America/Range: infrequently collected, North American range is not well understood; also known from Europe, Greenland, East and South Africa, South America, Australia, and New Zealand.
Notes: known to occur on stone and bark (especially deciduous), bare surfaces, mosses, liverworts, soil and mountain rocks (Purvis, et al., 1992).

Leptogium burnetiae Dodge
Abundance: 9, common.
Habitat: primarily over bark of deciduous trees and shrubs, more rarely on *Picea*, in deciduous or spruce/deciduous forest stands at low elevations.
Abundance in North America/Range: common; incompletely circumpolar, Alaska to Oregon and New Mexico. Rare in British Columbia.

Leptogium corniculatum (Hoffm.) Minks
Abundance: 2, infrequent.
Habitat: over bark of *Alnus* and on thin soil over rock in open coastal sites at lower elevations.
Abundance in North America/Range: common; western North America, Alaska to California, and western and eastern Eurasia. Reaches northernmost range in southeastern Alaska.

Leptogium cyanescens (Rabenh.) Körber
Sensitivity: 10.
Abundance: 6, infrequent to common?
Habitat: found mainly on bark of deciduous shrubs (*Alnus* and *Salix*) but also corticolous on *Picea*. Occurring, so far, only on the Unuk and Stikine valleys, mainland river valleys originating in the British Columbia interior .
Abundance in North America/Range: abundant (most common *Leptogium* in North America according to Sierk (1964)); incompletely circumpolar, Alaska to Colorado.

Leptogium furfuraceum (Harm.) Sierk
Abundance: 2, rare.
Habitat: found mainly on bark of deciduous shrubs. Occurring, so far, only on the Unuk and Stikine valleys, mainland river valleys originating in the British Columbia interior .
Abundance in North America/Range: common in western North America; amphi-Beringian, Alaska to California. Rare in British Columbia, absent outside North America.

Leptogium hirsutum Sierk
Abundance: 0, infrequent?
Habitat: expected on bark of deciduous trees and decaying logs.
Abundance in North America/Range: common; known from throughout the United States including Alaska, also from China, Japan, and Siberia (Sierk, 1964).
Notes: reported from Loop and Granite Basin Roads in Juneau (Krog, 1968). Krog's specimens determined by Sierk.

Leptogium lichenoides (L.) Zahlbr.
Abundance: 0, infrequent?
Habitat: in British Columbia over soil and especially over mossy rock outcrops at lower elevations, also rare over the bases of trees (Goward et al., 1992).
Abundance in North America/Range: common; circumpolar arctic-alpine, Alaska to California.
Notes: reported from south Kuiu Island and south Prince of Wales Island (Thomson, 1984).

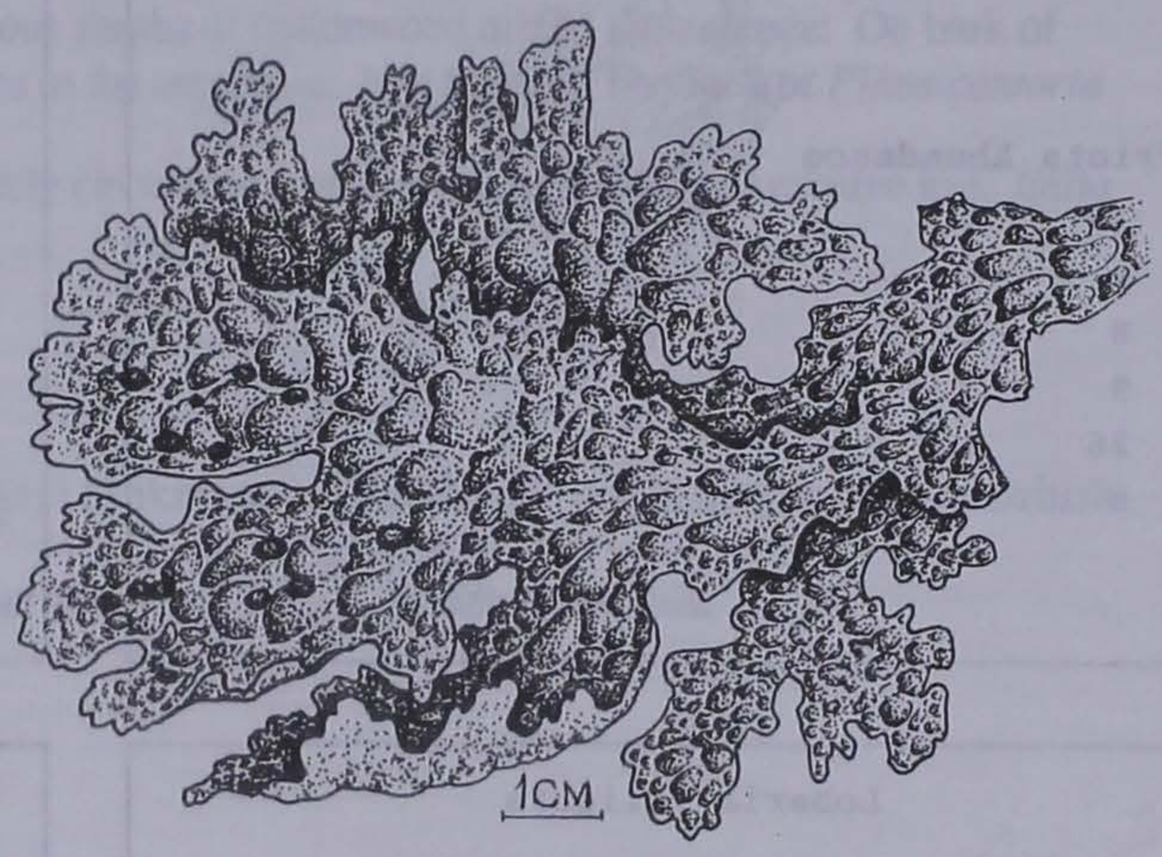
Leptogium saturninum (Dicks.) Nyl.
Sensitivity: 6-10.
Abundance: 5, common?
Habitat: on bark of deciduous trees and shrubs (*Populus*, *Alnus* and *Salix*). Occurring, so far, only on major, mainland river valleys (Unuk and Stikine Rivers) and from the low plains of Yakutat .
Abundance in North America/Range: abundant; circumpolar arctic-alpine, Alaska to California and New Mexico.

Leptogium tenuissimum (Dickson) Körber
Abundance: 1, rare.
Habitat: single collection from *Populus trichocarpa* in the Unuk valley on the mainland.
Abundance in North America/Range: infrequent--widely distributed in North America but rarely collected; circumpolar boreal.
Notes: according to Sierk (1964), especially common on sandy soil, also on sandstone and bark of trees.

Leptogium teretiusculum (Wallr.) Arnold
Abundance: 1, rare.
Habitat: on twig of *Picea sitchensis* along the Stikine River.
Abundance in North America/Range: rare; probably widely distributed in northern North America and incompletely circumpolar.
Notes: all North American specimens examined by Sierk (1964) were on bark.

Lobaria hallii (Tuck.) Zahlbr.
Abundance: 11, common.
Habitat: infrequent over deciduous trees and shrubs (*Populus*, *Alnus* and *Salix*) and spruce in low elevation stands; especially in river valleys.
Abundance in North America/Range: infrequent; western North America (Alaska to California), Greenland, Scandinavia and western Eurasia.

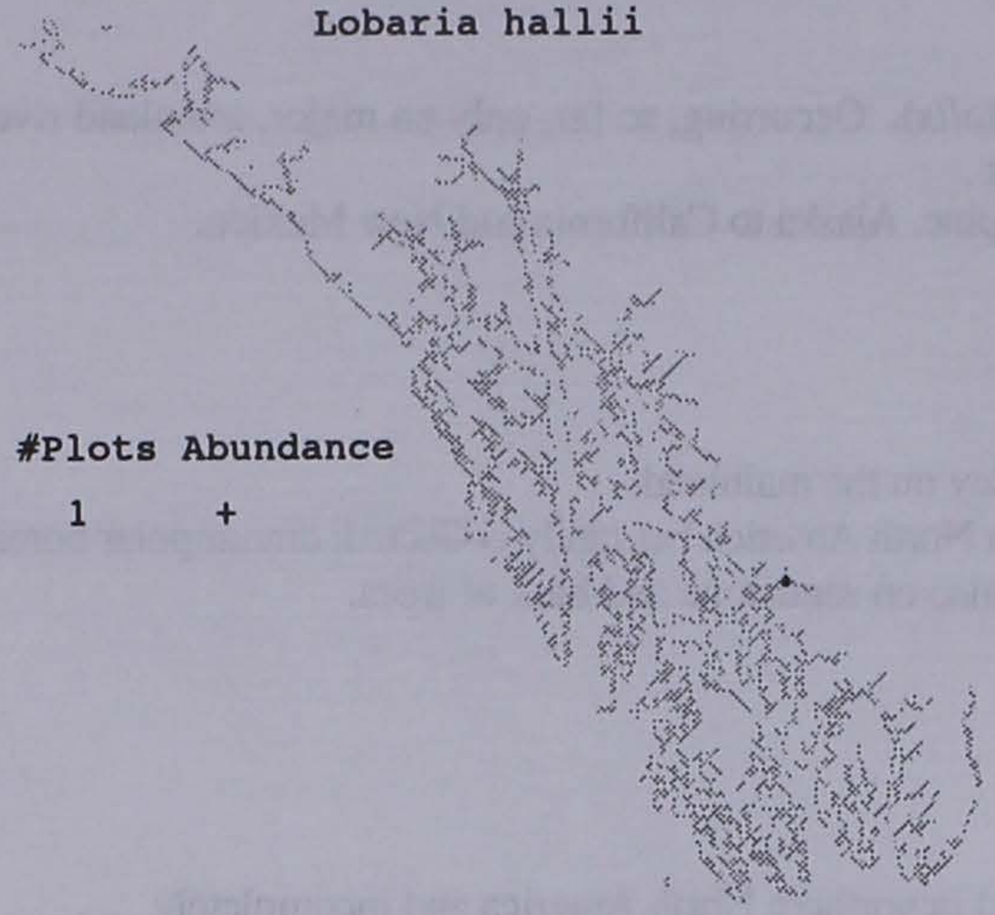
Lobaria kurokawae Yoshim.
Abundance: 0, rare.
Habitat: among mosses over soil and rocks (Thomson, 1984).
Abundance in North America/Range: rare; amphi-Beringian, but mainly an Asian species.
Notes: reported from Mendenhall Lake, Mendenhall Glacier and Herbert Glacier areas near Juneau (Jordan, 1973). Closely related to *L. pseudopulmonaria* and can only be distinguished by chemical analysis.



Lobaria linita

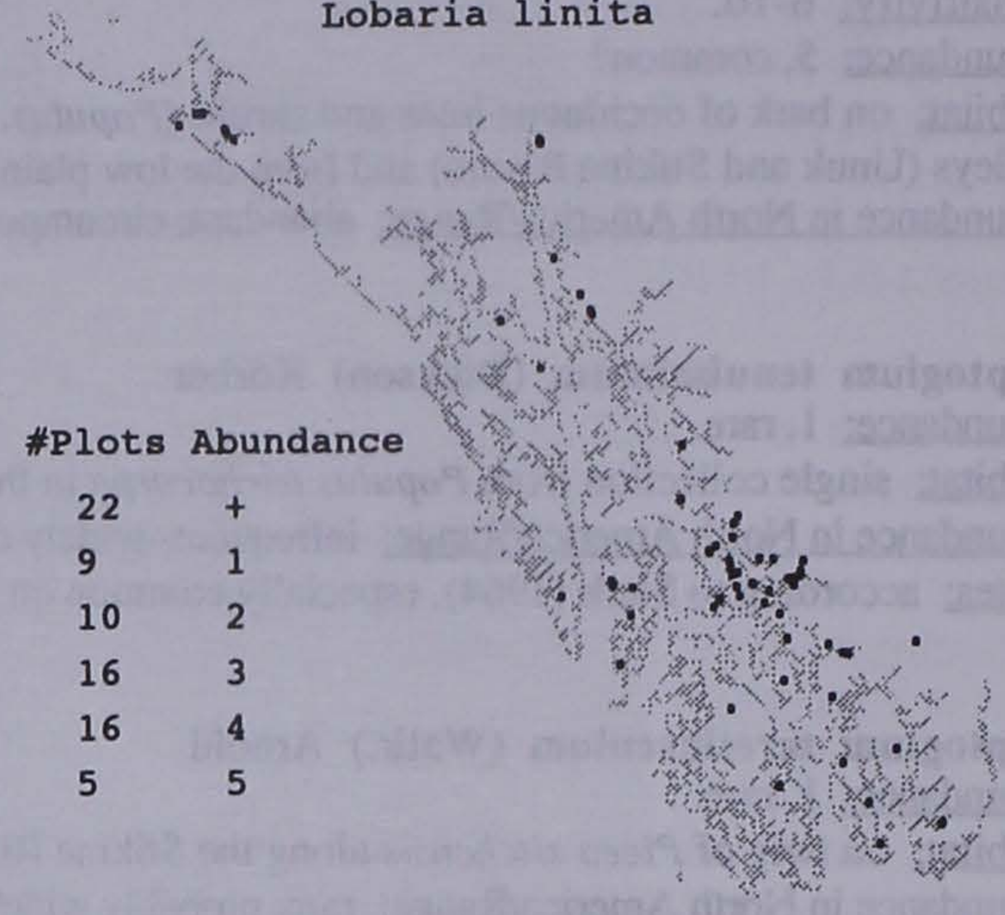
Lobaria linita (Ach.) Rabenh.
Abundance: 79, abundant.
Habitat: over the bases, trunks and branches of conifers and deciduous trees and shrubs in spruce and hemlock and deciduous forest stands at lower elevations to the subalpine; also common over mossy rocks in the subalpine and alpine. Not in low elevation peatlands or *Pinus contorta* forests.
Abundance in North America/Range: common; circumpolar arctic-alpine, Alaska to Oregon in North America with primary range in Alaska.
Notes: our collections were mostly var. **tenuior,** i.e. large, reticulately ribbed, fertile and growing on trees. Var. **linita** is found in alpine habitats and tends to be smaller, reticulately wrinkled and sterile (Jordan, 1973).

Lobaria hallii



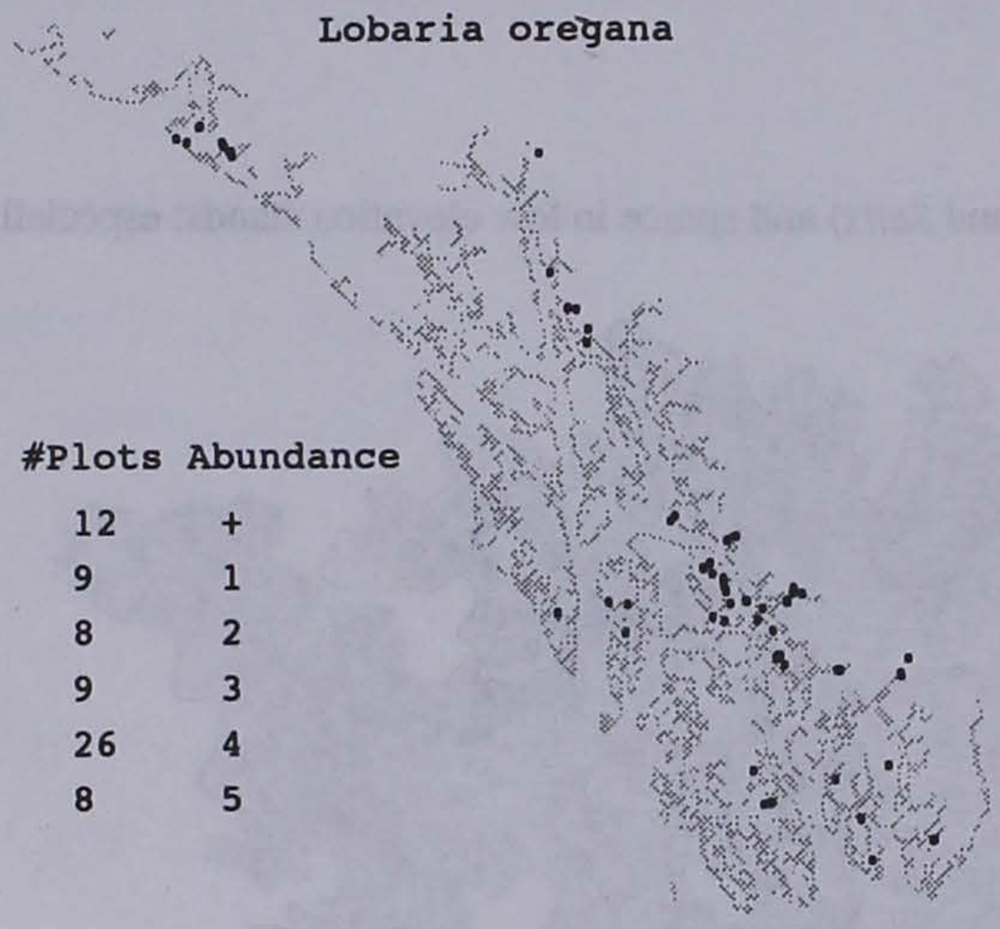
#Plots	Abundance
1	+

Lobaria linita



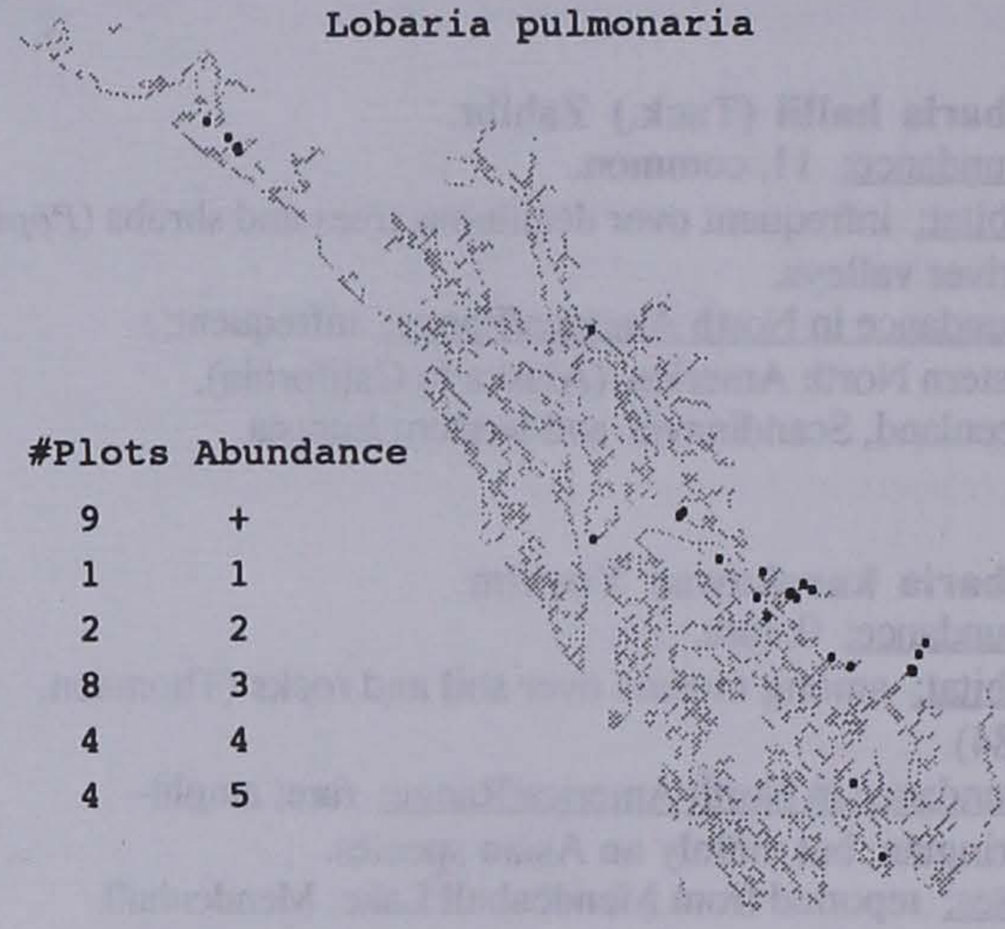
#Plots	Abundance
22	+
9	1
10	2
16	3
16	4
5	5

Lobaria oregana



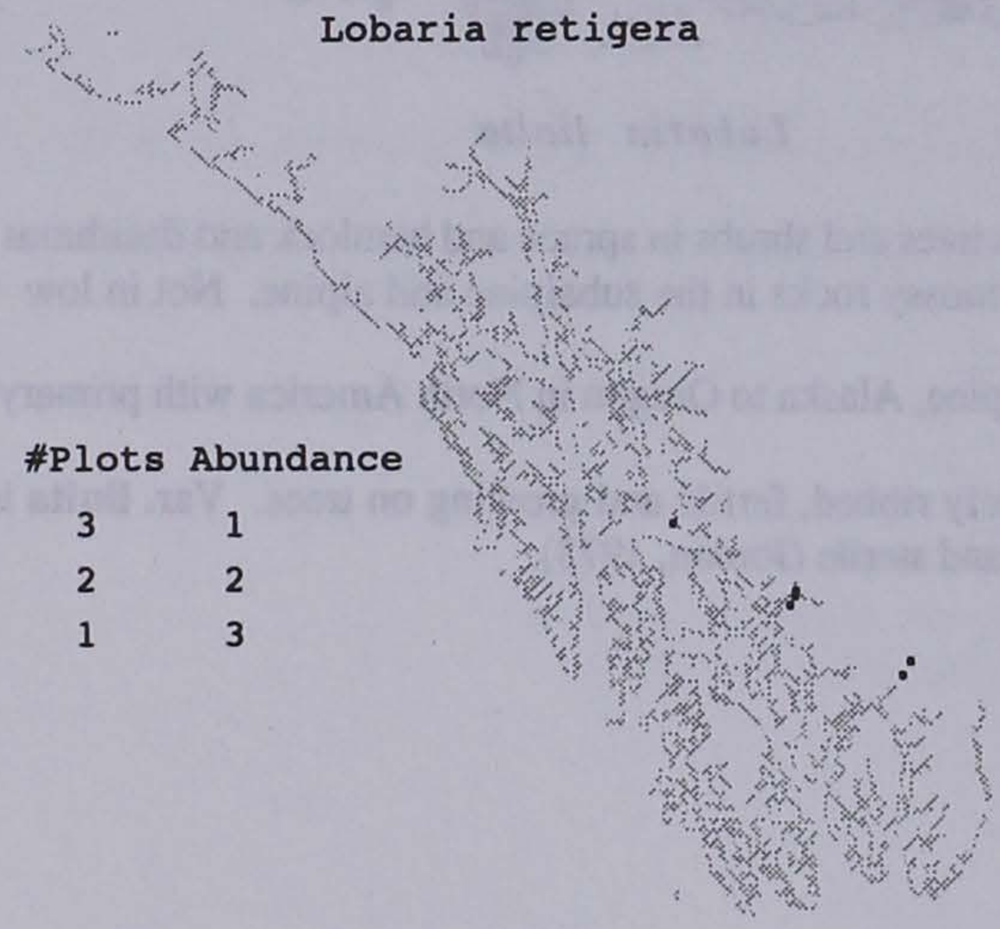
#Plots	Abundance
12	+
9	1
8	2
9	3
26	4
8	5

Lobaria pulmonaria



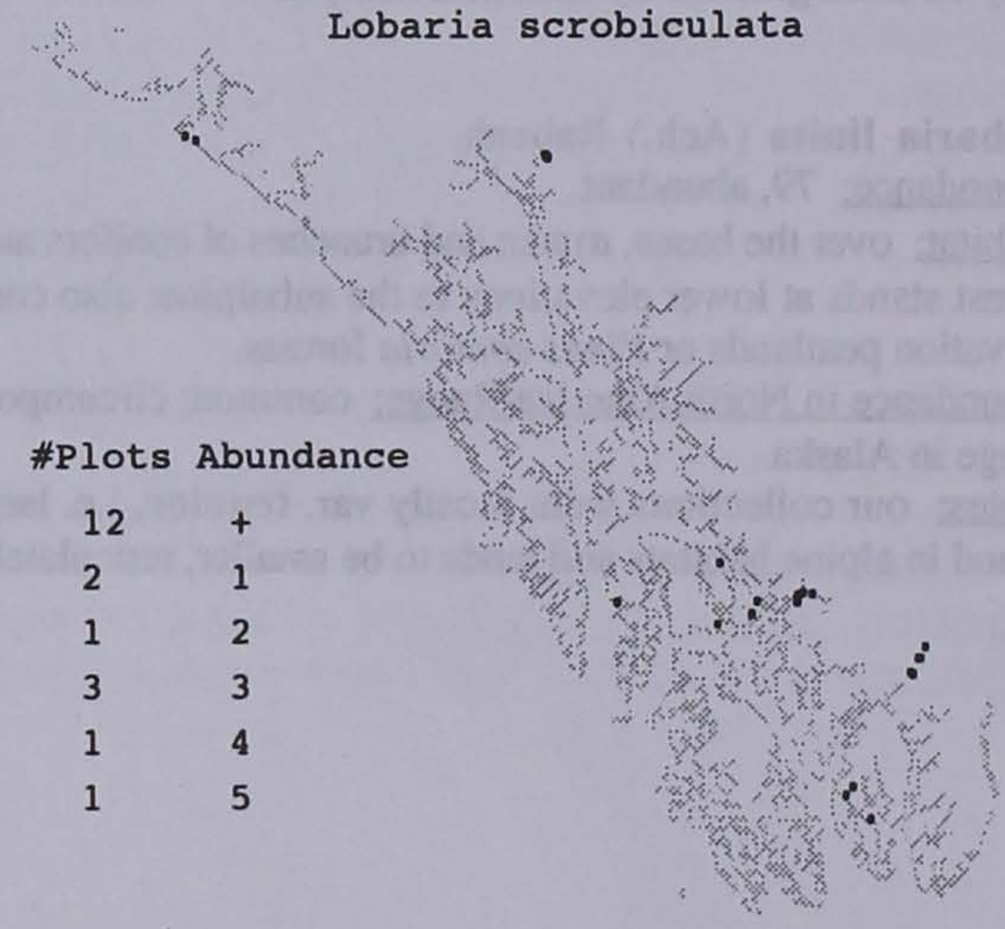
#Plots	Abundance
9	+
1	1
2	2
8	3
4	4
4	5

Lobaria retigera



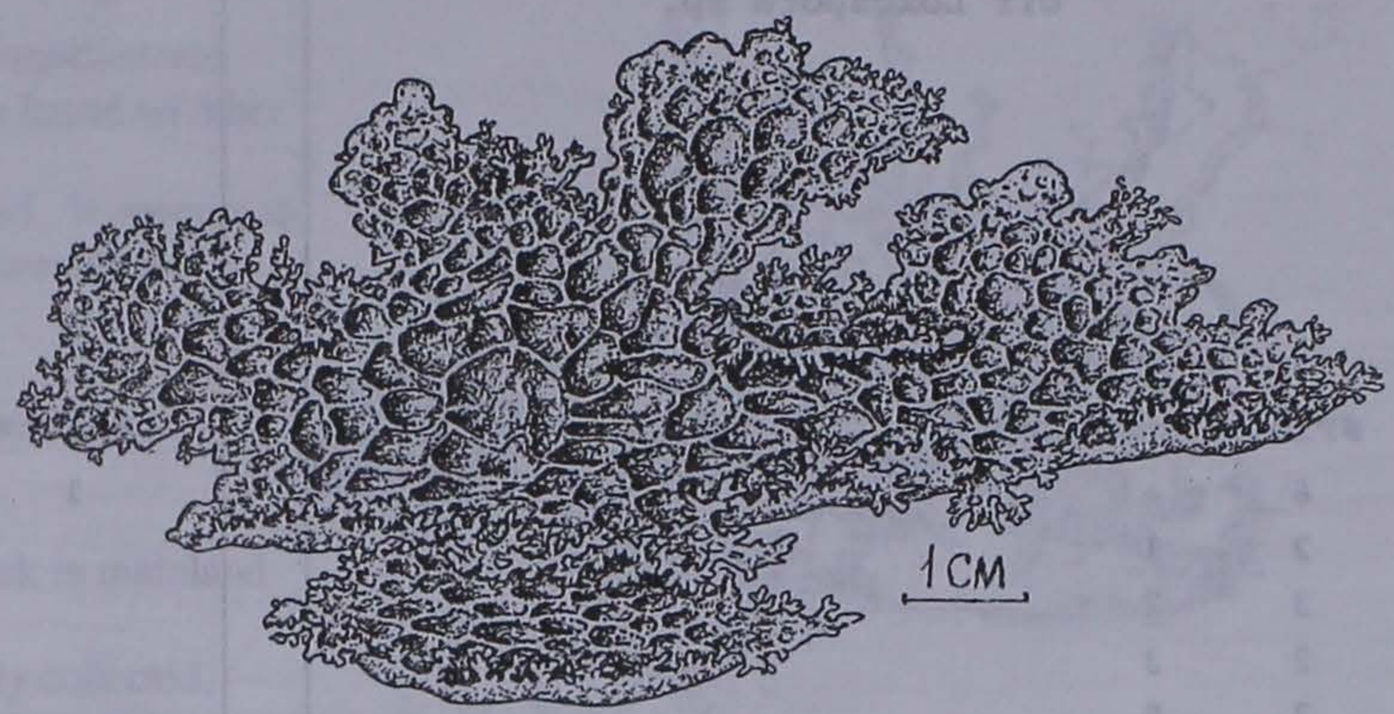
#Plots	Abundance
3	1
2	2
1	3

Lobaria scrobiculata



#Plots	Abundance
12	+
2	1
1	2
3	3
1	4
1	5

Lobaria oregana (Tuck.) Mull. Arg.
SO_2 Sensitivity: sensitive, -/50, 70.
Abundance: 63, abundant.
Habitat: mainly on branches and trunks of conifers and on deciduous shrubs in forested stands at low elevations. Sometimes found on *Alnus* but usually yellow in color in such cases. Not found in peatlands or on *Pinus*.
Abundance in North America/Range: common; Pacific west coast endemic from Cook Inlet, Alaska to northern California.
Notes: baseline elemental analysis data from the Tongass National Forest is available for this lichen.



Lobaria oregana

Lobaria pseudopulmonaria Gyeln.
Abundance: 0, rare.
Habitat: on soil and among mosses, sometimes over rocks (Thomson, 1984).
Abundance in North America/Range: rare; amphi-Beringian species, more common in Asia.
Notes: reported from Mendenhall Lake area (Jordan, 1973).

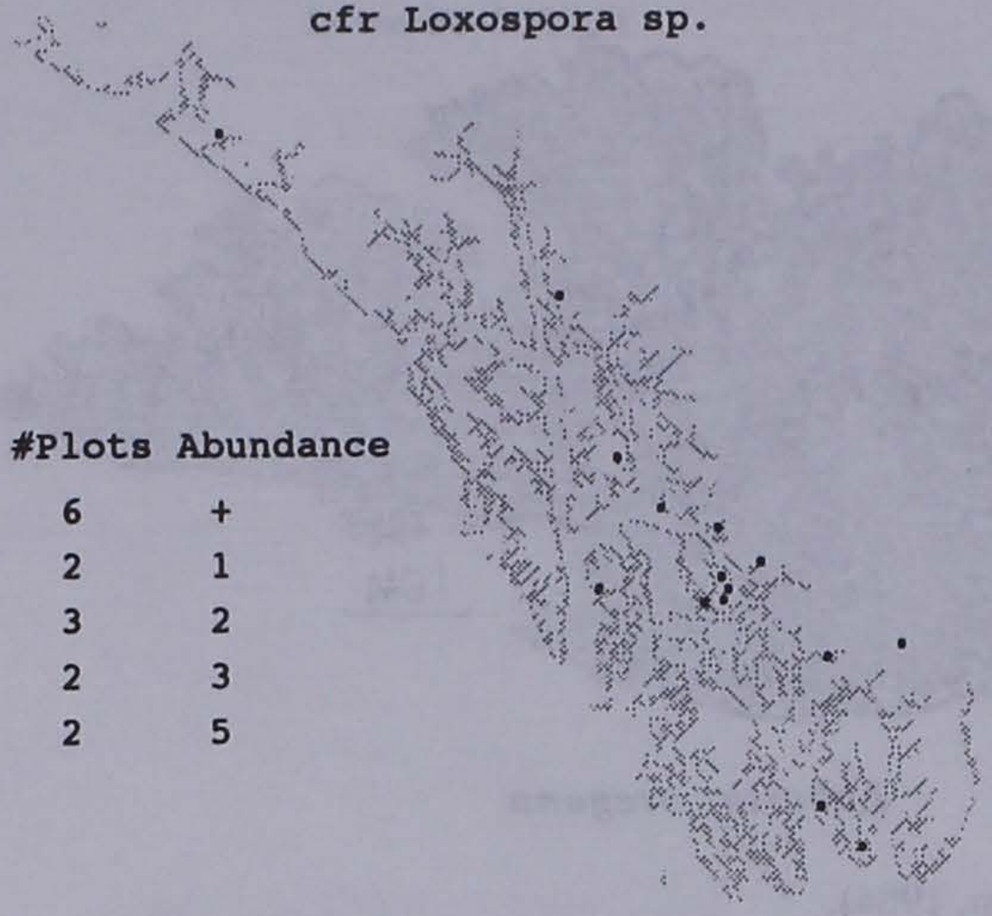
Lobaria pulmonaria (L.) Hoffm.
Sensitivity: 7-10.
SO_2 Sensitivity: sensitive, 26/26-34.
Abundance: 27, common.
Habitat: most commonly associated with stands of deciduous shrubs or cottonwood mixed with spruce. On bark of coniferous and deciduous trees, and shrubs. Low elevations to the subalpine. Not found in hemlock or *Pinus contorta* forests.
Abundance in North America/Range: abundant; incompletely circumpolar, increasing in abundance relative to *L. linita* moving south from Alaska to California.

Lobaria retigera (Bory) Trevisan
Abundance: 6, rare.
Habitat: on branches of *Picea* in mainland major river valleys (Stikine and Unuk Rivers) originating in interior British Columbia.
Abundance in North America/Range: rare; amphi-Beringian species, Alaska to British Columbia.

Lobaria scrobiculata (Scop.) DC. **in** Lam. & DC.
Sensitivity: 10.
Abundance: 20, common.
Habitat: most commonly associated with low elevation stands of deciduous shrubs or cottonwood mixed with spruce. On bark. Not in hemlock or *Pinus contorta* forests.
Abundance in North America/Range: common; circumpolar low arctic and boreal, Alaska to California.

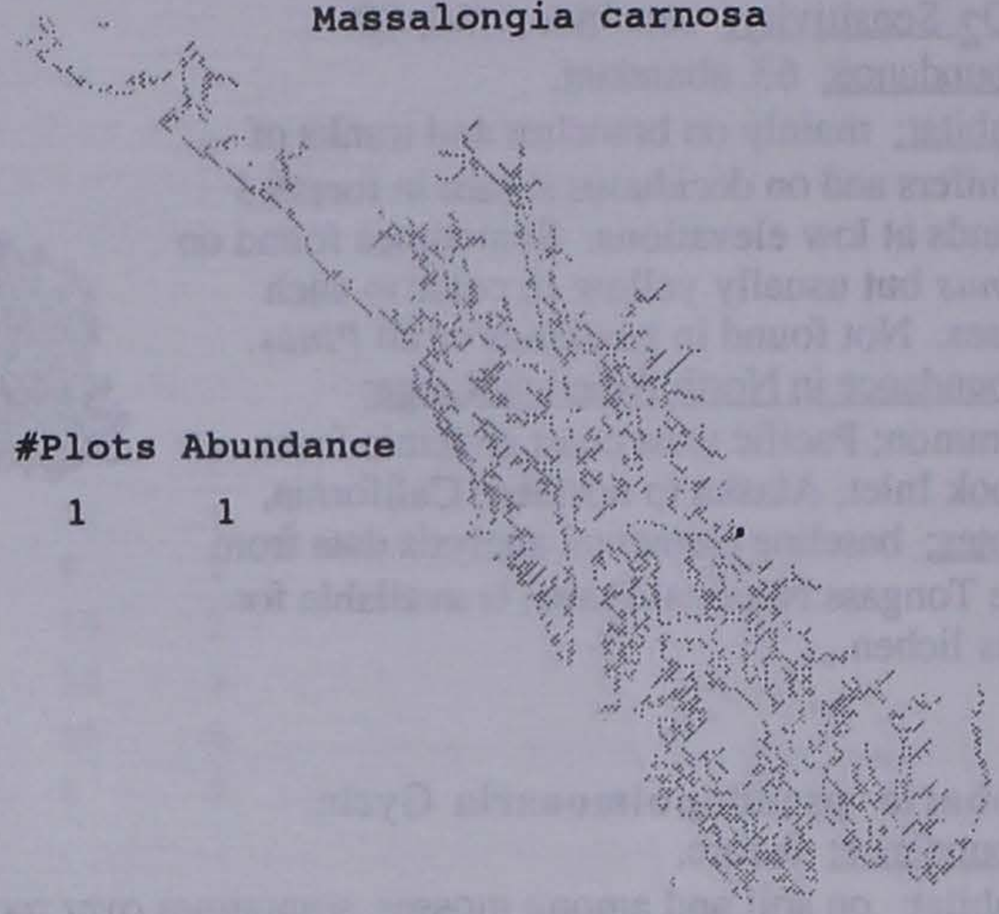
Lopadium pezizoideum (Ach.) Körber
SO_2 Sensitivity: intermediate, 34-52/52-78.
Abundance: 1, ?
Habitat: corticolous in oceanic forests and subalpine- alpine habitats.
Abundance in North America/Range: common; circumpolar arctic-alpine.

cfr Loxospora sp.



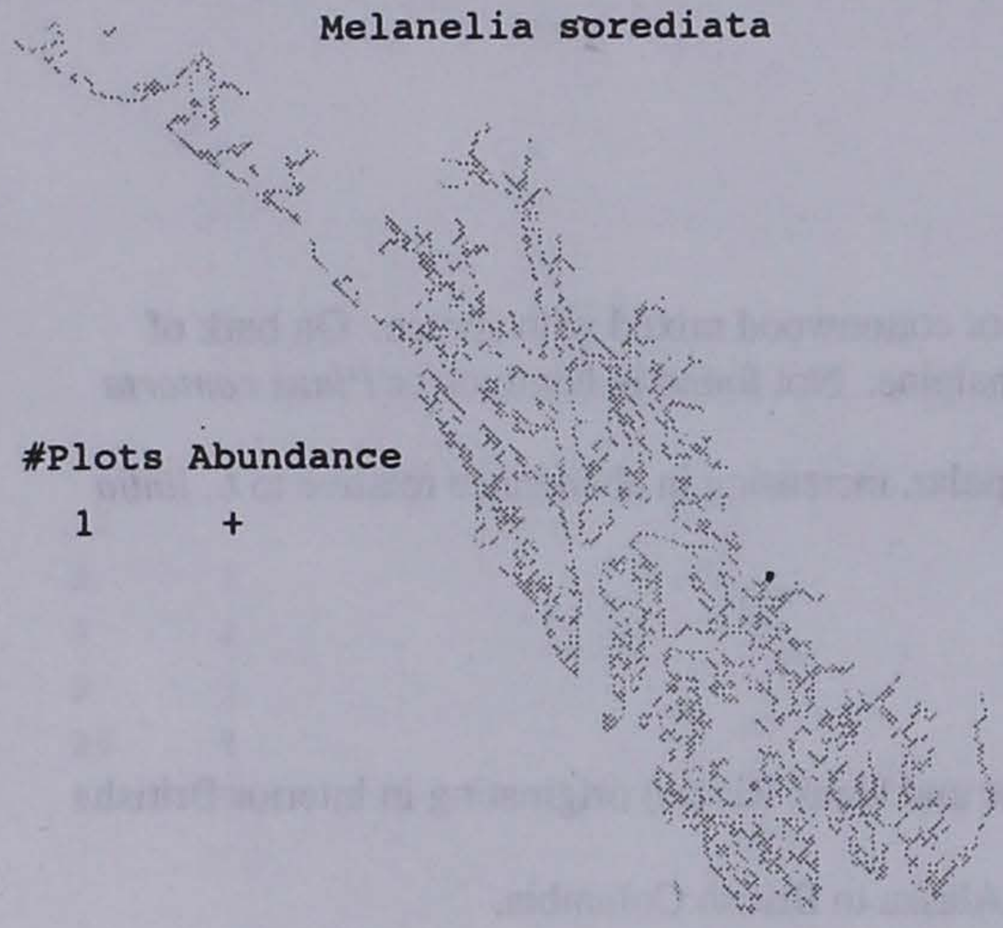
#Plots	Abundance
6	+
2	1
3	2
2	3
2	5

Massalongia carnosa



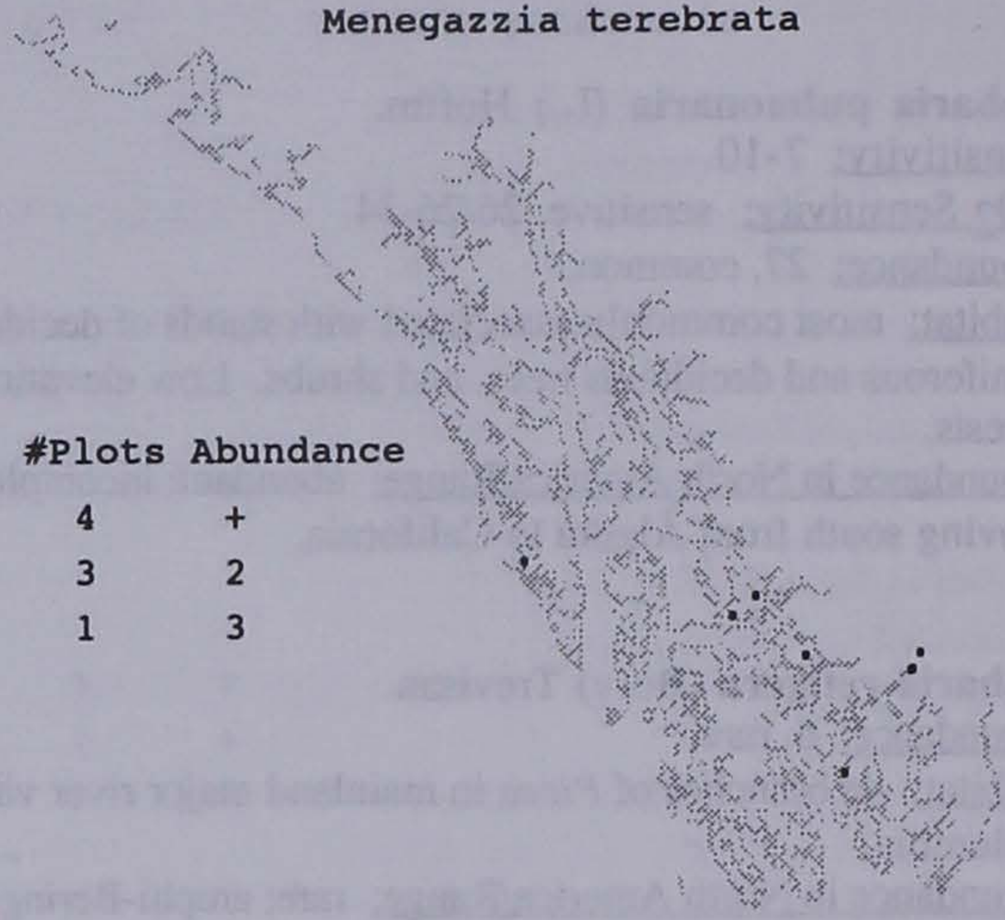
#Plots	Abundance
1	1

Melanelia sorediata



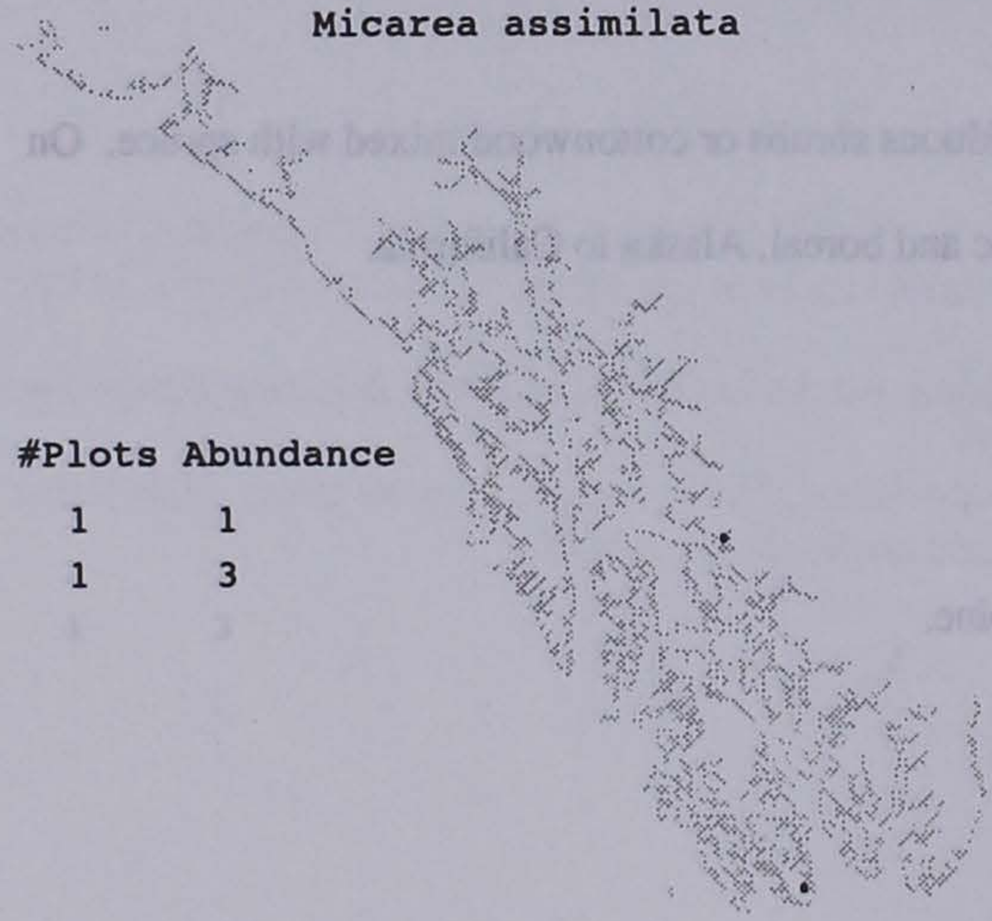
#Plots	Abundance
1	+

Menegazzia terebrata



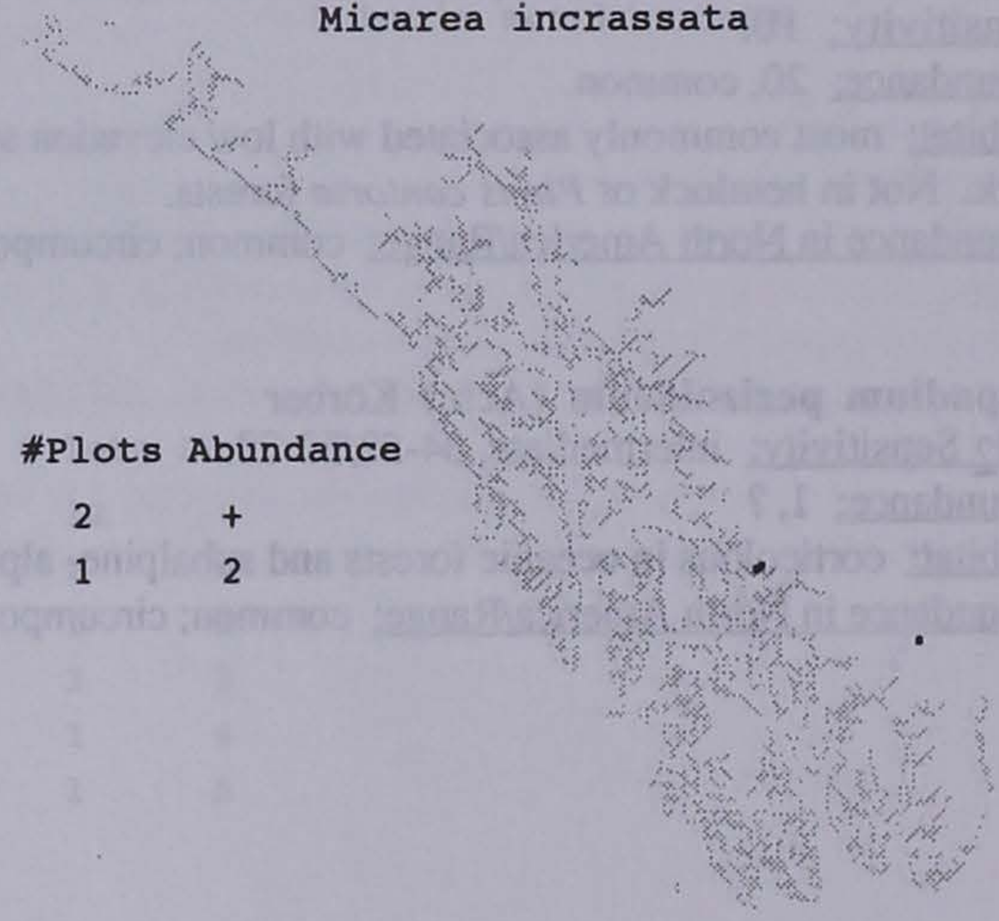
#Plots	Abundance
4	+
3	2
1	3

Micarea assimilata



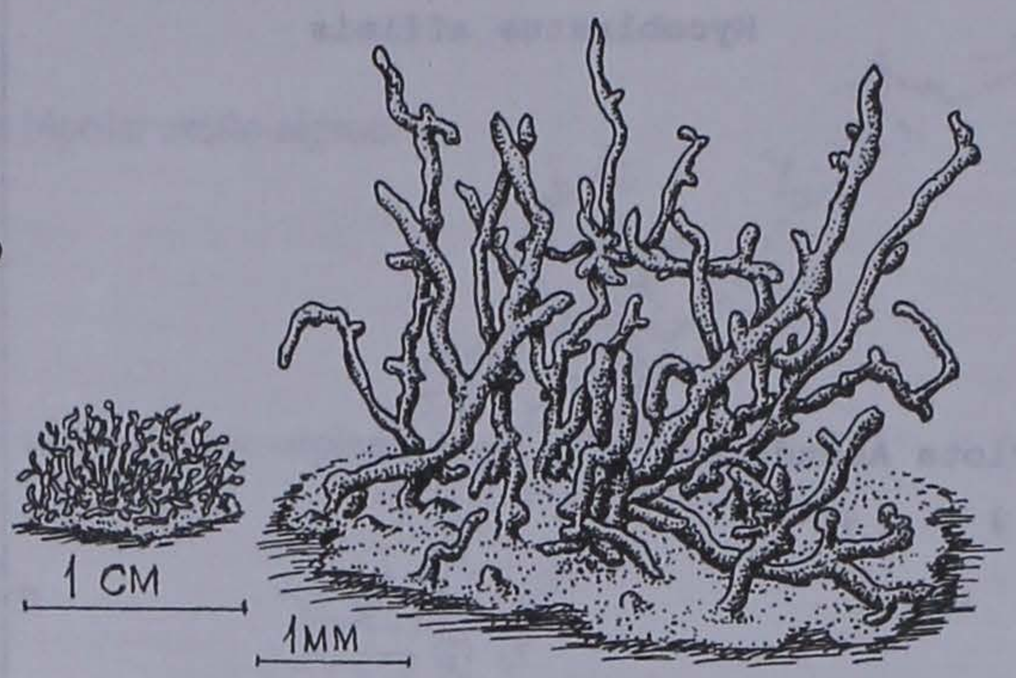
#Plots	Abundance
1	1
1	3

Micarea incrassata



#Plots	Abundance
2	+
1	2

Loxospora sp. nov. Imshaug & Brodo ined.
Abundance: 15, abundant.
Habitat: especially common on undersides of *Pinus contorta* branches in open *Pinus contorta* peatlands. Also found on other conifers (*Thuja, Tsuga*).
Notes: this common species is as yet undescribed. It appears to be endemic to the North American Pacific Northwest from Oregon to Alaska.



Loxospora

Massalongia carnosa (Dickson) Körber
Abundance: 1, infrequent?
Habitat: single collection from moss covered rock in mainland alpine.
Abundance in North America/Range: infrequently collected, widely distributed arctic-alpine species from North America and Greenland, South America, Australia, Northern Europe, New Zealand and Kamchatka.

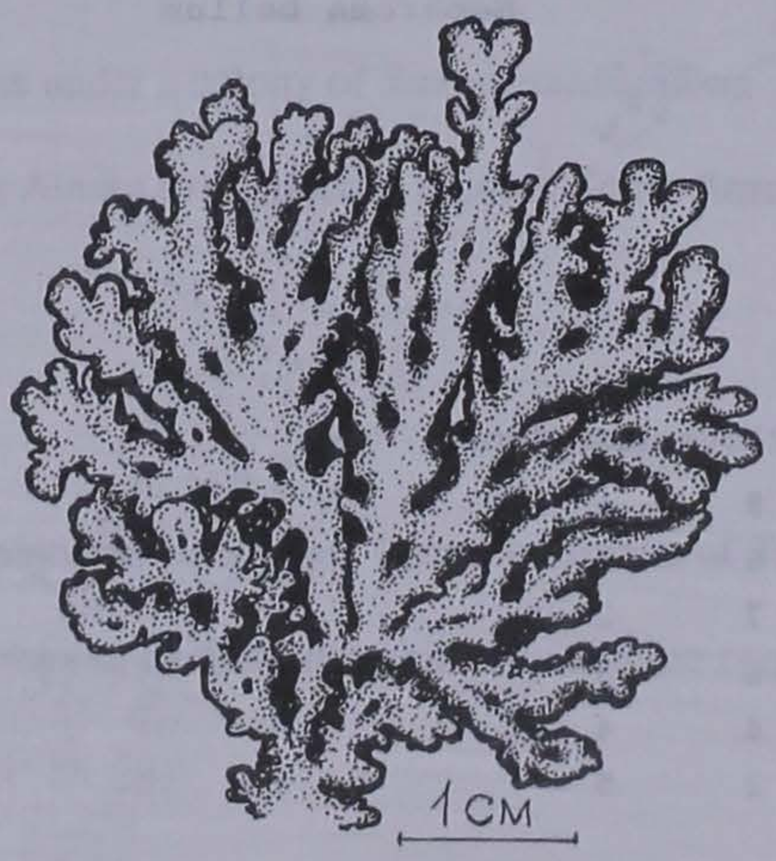
Melanelia fuliginosa (Fr. ex Duby) Essl.
SO_2 Sensitivity: intermediate, 34-52/52-78.
Abundance: 0, rare.
Habitat: occurs on bark or rocks (Thomson, 1984)
Abundance in North America/Range: common and widespread in North America, Alaska distribution poorly known; common in Europe, circumpolar temperate.
Notes: reported from Shipley Bay of Kosciusko Island (Herre, 1919).

Melanelia multispora (A. Schneider) Essl.
Abundance: 0, rare.
Habitat: over deciduous trees and shrubs in coastal forests.
Abundance in North America/Range: common in western North America, Alaska to California.
Notes: reported from Mendenhall Lake area (Krog, 1968).

Melanelia sorediata (Ach.) Goward & Ahti
Abundance: 1, ?
Habitat: single collection from rock along LeConte Bay. Also known to occur on bark (Thomson, 1984).
Abundance in North America/Range: common; circumpolar boreal, Alaska and Canada south to Washington, the Great Lakes and New England.

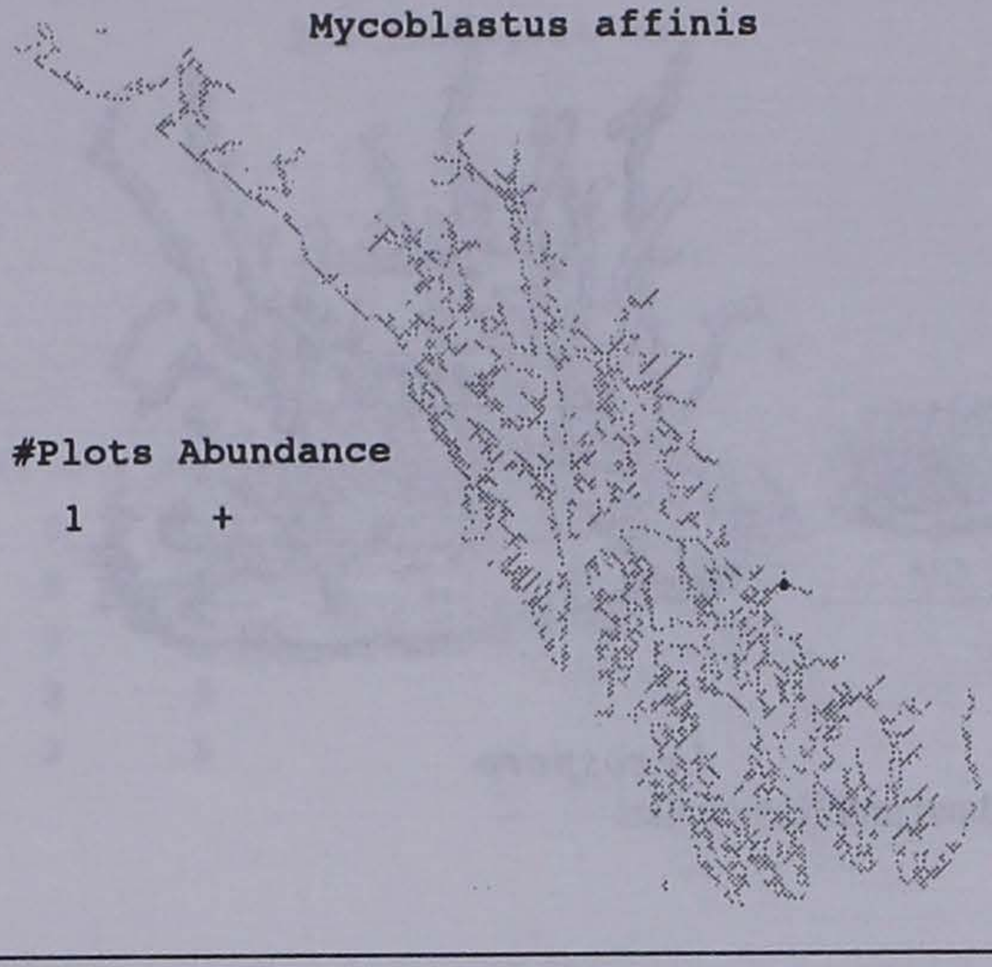
Melanelia subaurifera (Nyl.) Essl.
SO_2 Sensitivity: sensitive, 10-30/,0.
Abundance: 0, infrequent to rare.
Habitat: over trees in open to somewhat sheltered low elevation forests in British Columbia (Goward et al., 1992).
Abundance in North America/Range: abundant; circumpolar boreal and temperate, widespread in North America.
Notes: reported from Indian River Trail near Sitka and Saxman Village near Ketchikan (Krog, 1968).

Menegazzia terebrata (Hoffm.) Massal.
Sensitivity: 10.
Abundance: 8, common.
Habitat: over deciduous trees and shrubs, most notably *Alnus*, in open to somewhat shady coastal forests at lower elevations.
Abundance in North America/Range: incompletely circumpolar, Alaska to California.



Menegazzia terebrata

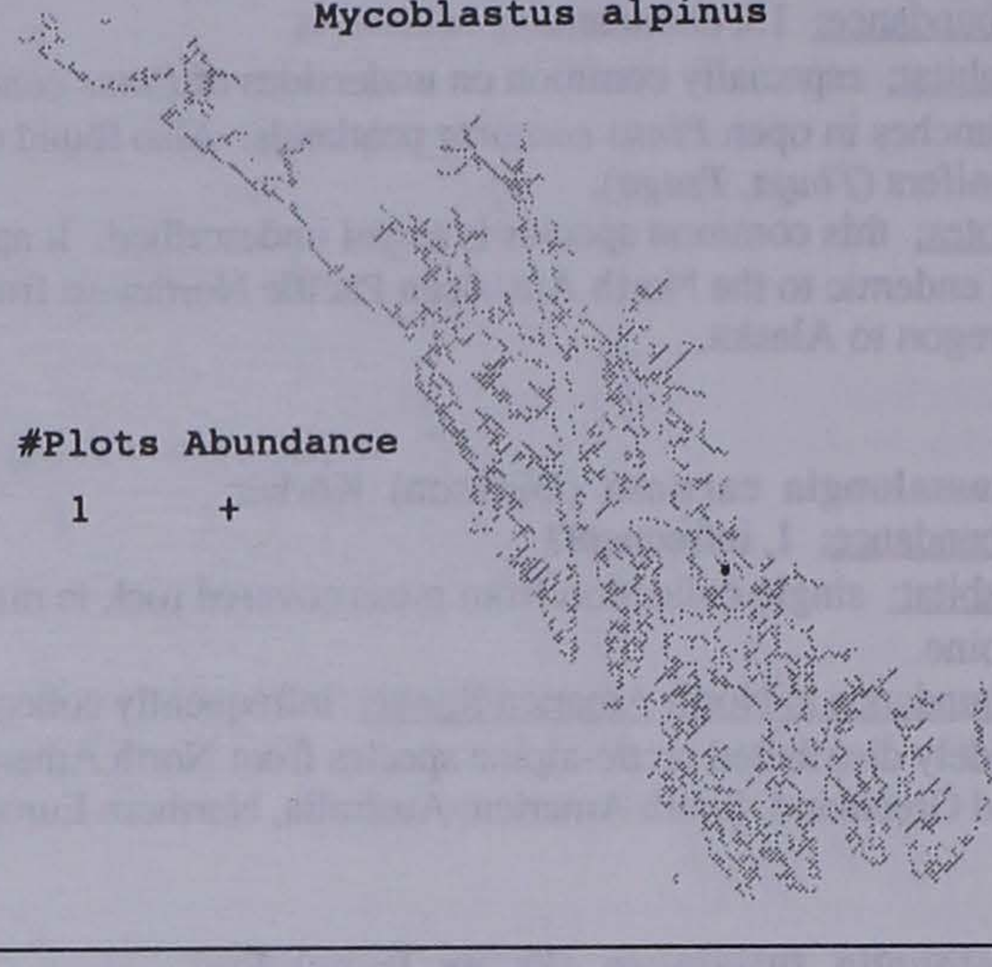
Mycoblastus affinis



#Plots Abundance

1 +

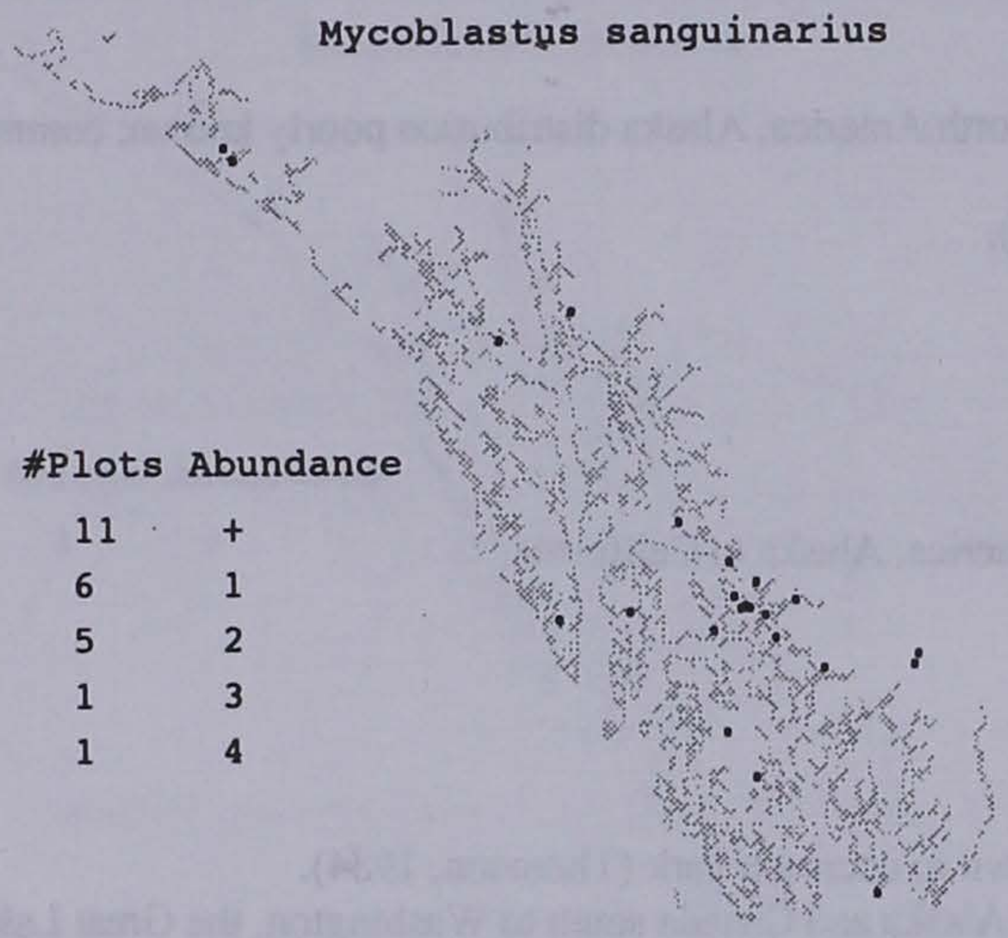
Mycoblastus alpinus



#Plots Abundance

1 +

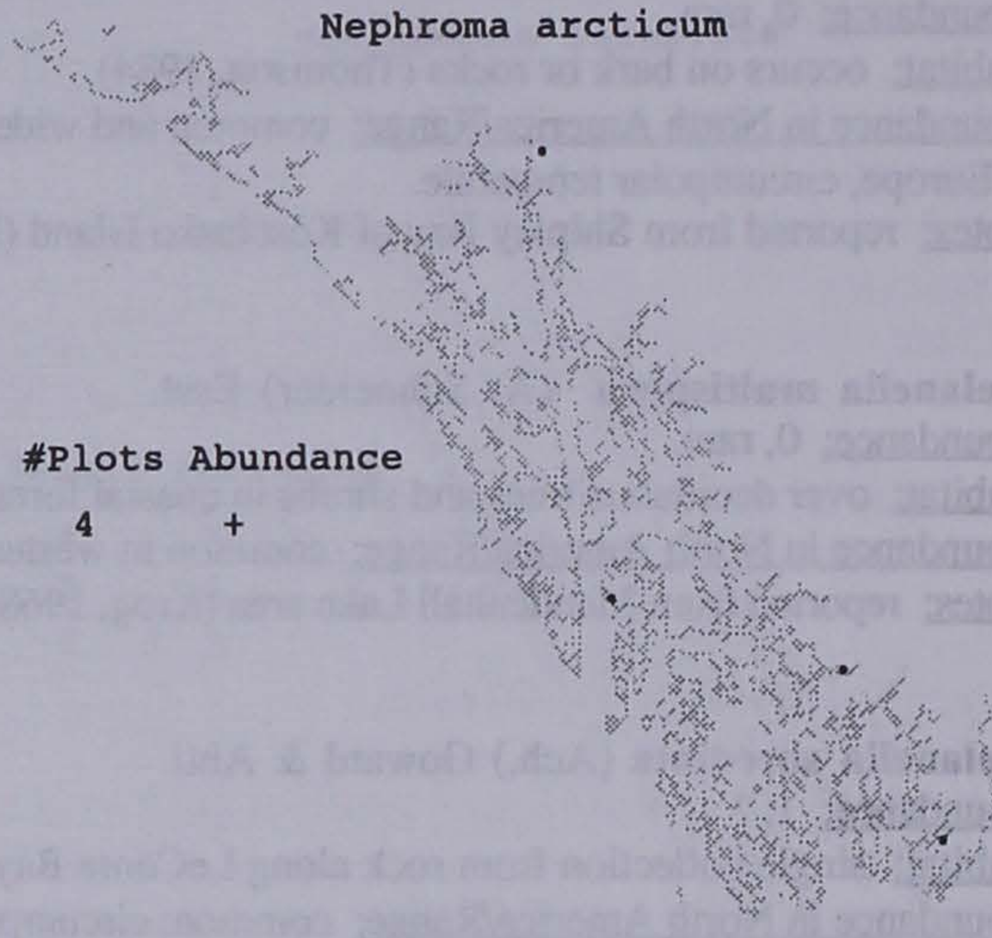
Mycoblastus sanguinarius



#Plots Abundance

#Plots	Abundance
11	+
6	1
5	2
1	3
1	4

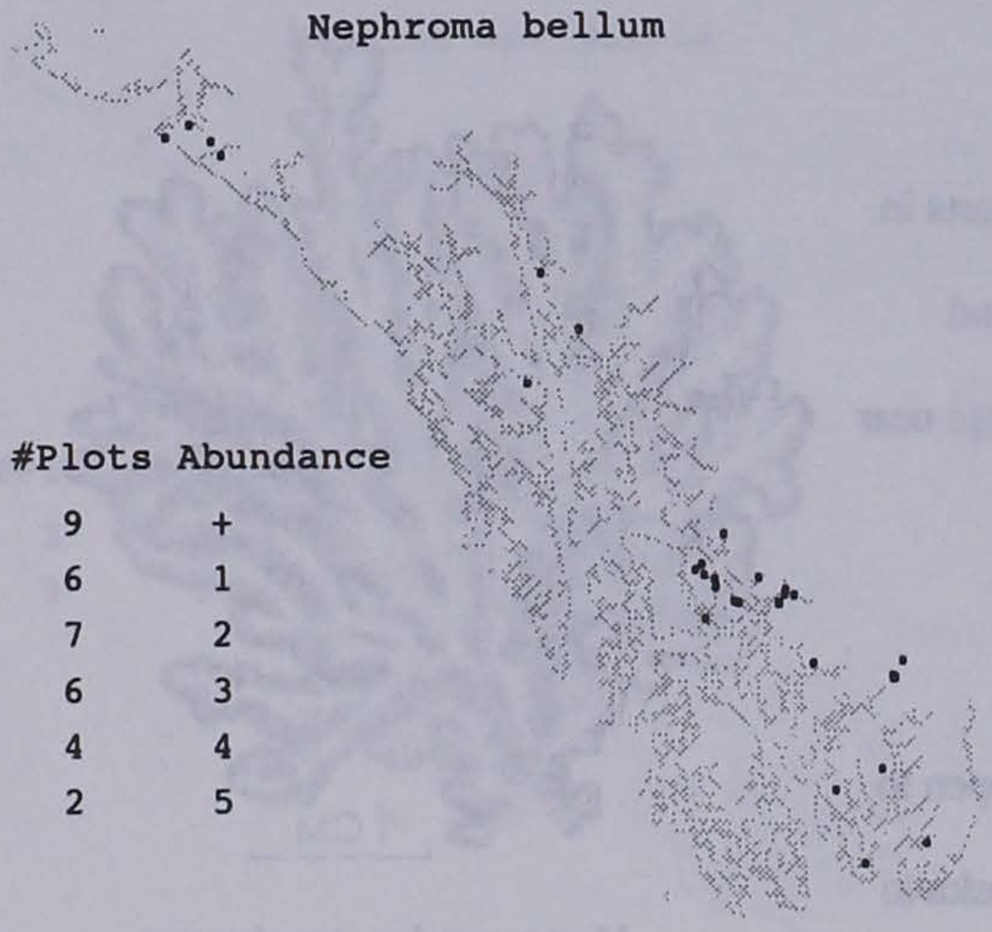
Nephroma arcticum



#Plots Abundance

4 +

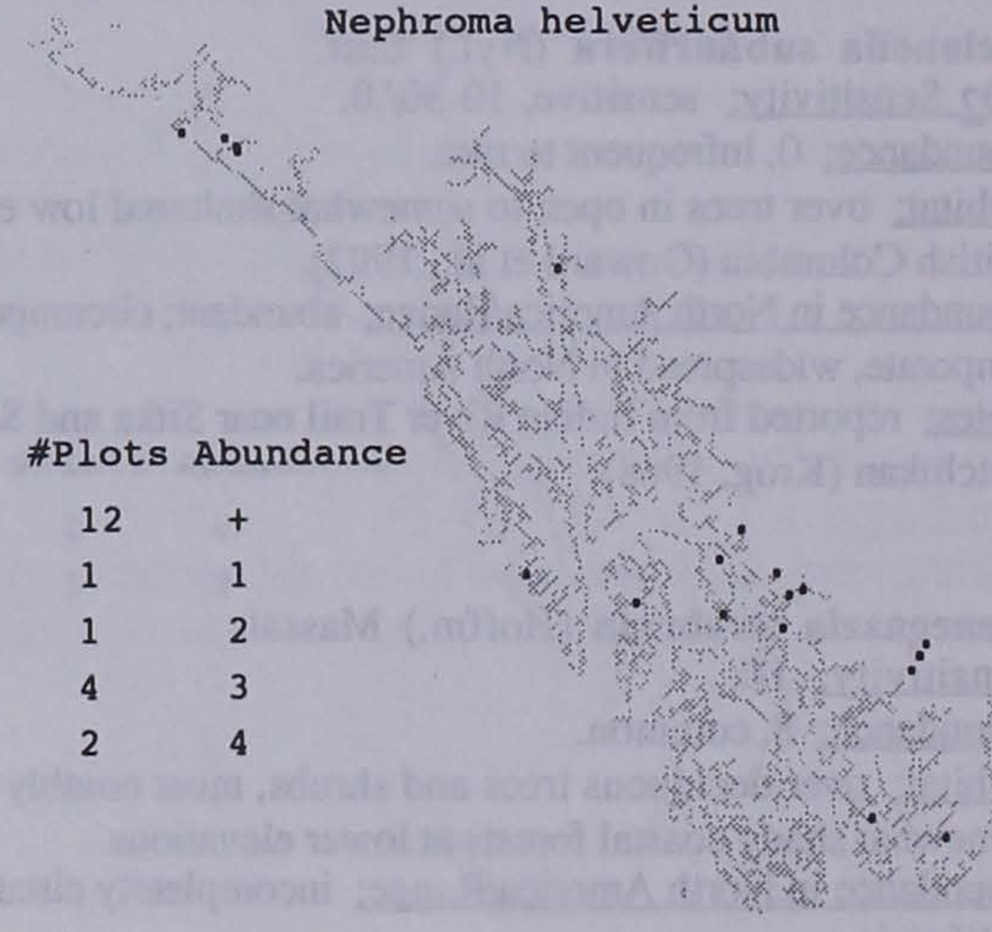
Nephroma bellum



#Plots Abundance

#Plots	Abundance
9	+
6	1
7	2
6	3
4	4
2	5

Nephroma helveticum



#Plots Abundance

#Plots	Abundance
12	+
1	1
1	2
4	3
2	4

Micarea assimilata (Nyl.) Coppins
Abundance: 3, ?
Habitat: on rocks in alpine and subalpine habitats.
Abundance in North America/Range: common; circumpolar and bipolar arctic-alpine.

Micarea incrassata Hedl.
Abundance: 1, ?
Habitat: on soil and rock in the alpine.
Abundance in North America/Range: common; circumpolar and bipolar arctic-alpine.

Mycobilimbia berengeriana (Massal.) Hafellner & V. Wirth
Abundance: 1, ?
Habitat: single collection from exposed soil in an open mixed conifer forest.
Abundance in North America/Range: common; circumpolar boreal and arctic.

Mycoblastus affinis (Schaerer) Schauer
SO_2 Sensitivity: intermediate, 34-52/52-78.
Abundance: 1, ?
Habitat: corticolous in forests.
Abundance in North America/Range: Infrequent; circumpolar arctic-alpine.

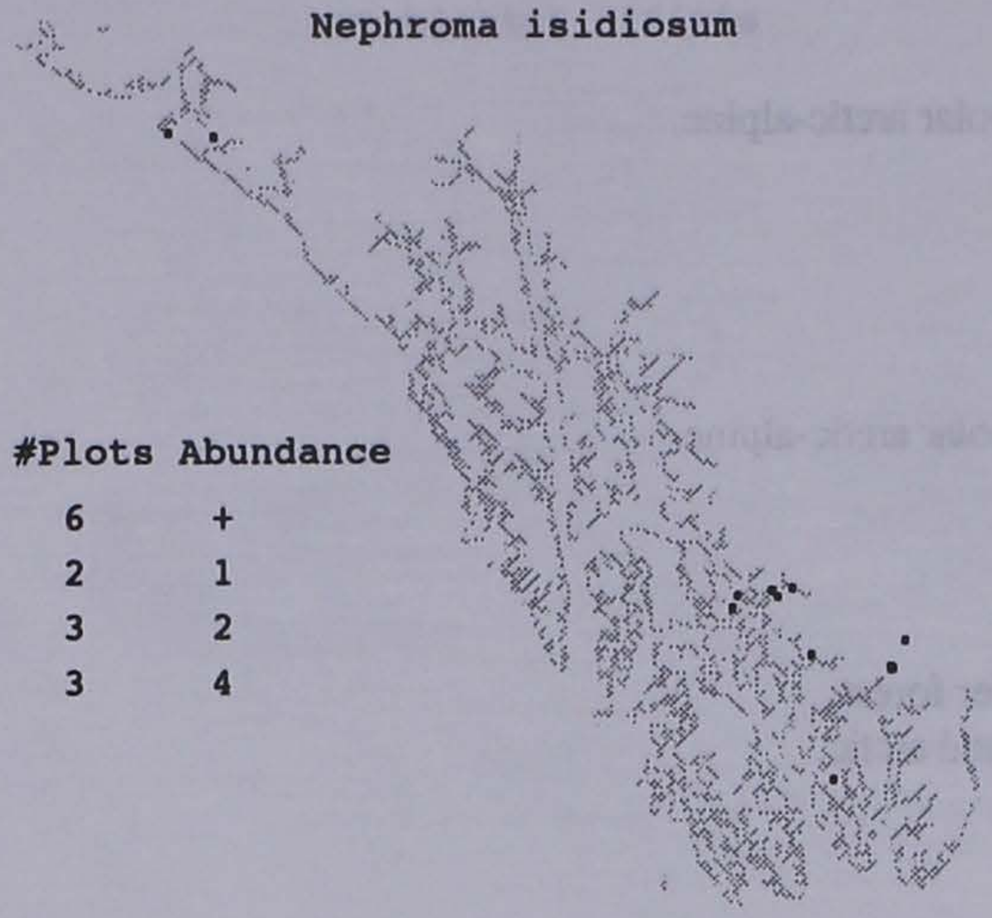
Mycoblastus alpinus (Fr.) Kernst.
Sensitivity: 8.
Abundance: 1, ?
Habitat: on bark of conifers.
Abundance in North America/Range: common; circumpolar arctic and boreal.

Mycoblastus sanguinarius (L.) Norm
Sensitivity: 5-10.
SO_2 Sensitivity: intermediate, 52-78/-.
Abundance: 1, common.
Habitat: widespread on all conifers and all major deciduous trees and shrubs in most forest types from low elevation to the subalpine.
Abundance in North America/Range: common; circumpolar arctic, alpine and boreal.

Neofuscelia subhosseana (Essl.) Essl.
Abundance: 1, rare?
Habitat: single collection growing on rock covered with a thin layer of humus under a colony of *Stereocaulon*, along LeConte Bay.
Abundance in North America/Range: rare, western North America, southeast Alaska to California; bipolar, South America, New Zealand, and South Africa.
Notes: northern range extension.

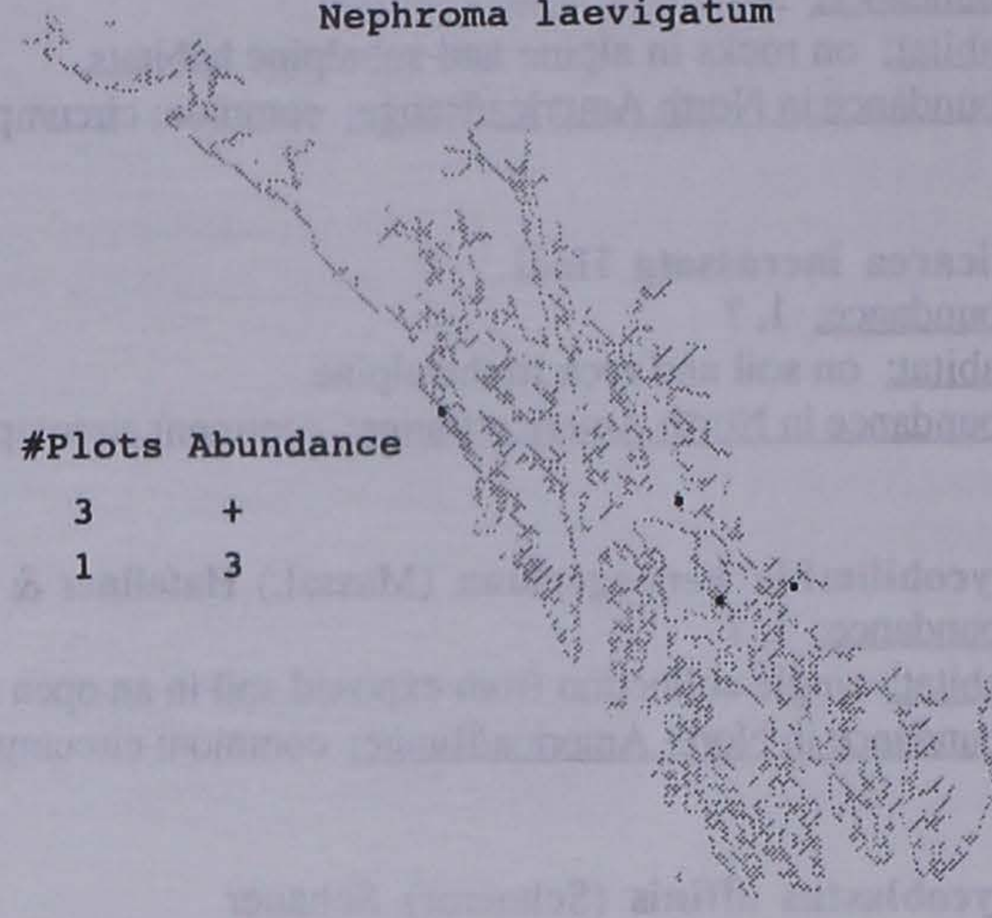
Nephroma arcticum (L.) Torss.
Abundance: 4, infrequent.
Habitat: over moss and mossy rocks, especially in snowy habitats, in the alpine and subalpine. Found on trunks of Tsuga heterophylla at about 300 m at one location.
Abundance in North America/Range: abundant; circumpolar arctic-alpine Alaska to British Columbia. Much more common further north.

Nephroma isidiosum



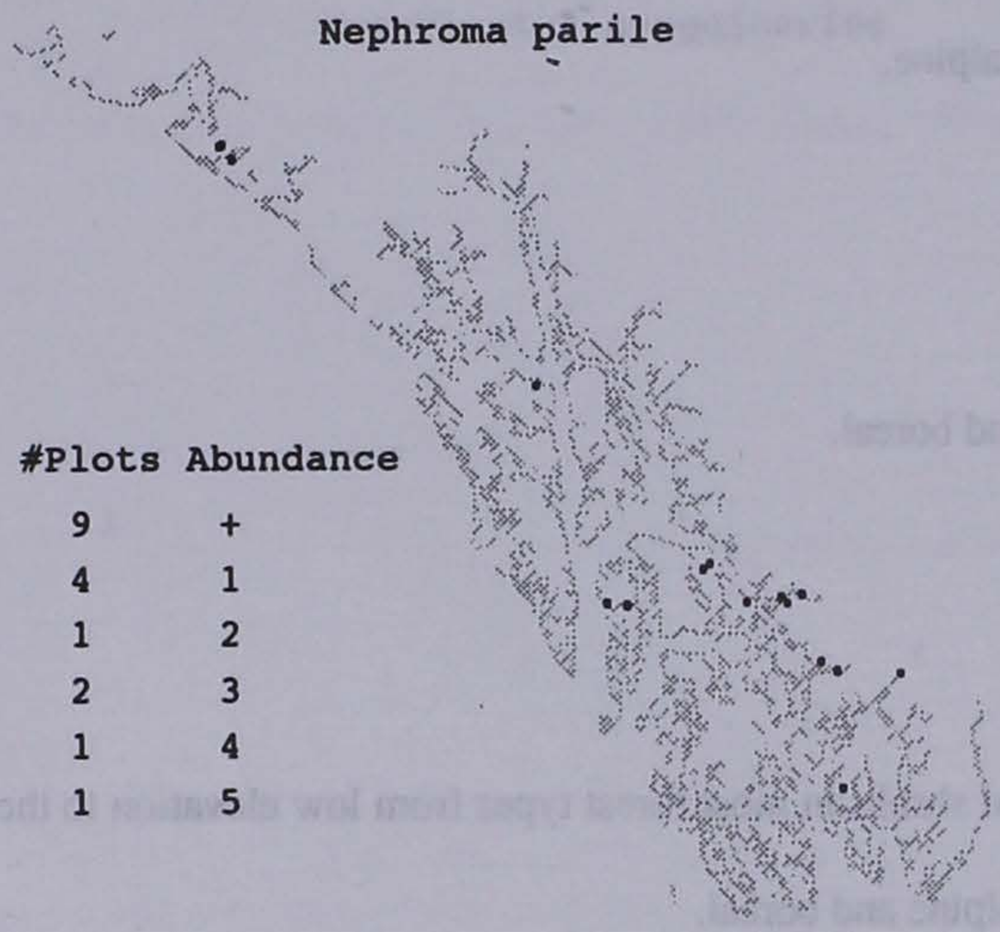
#Plots	Abundance
6	+
2	1
3	2
3	4

Nephroma laevigatum



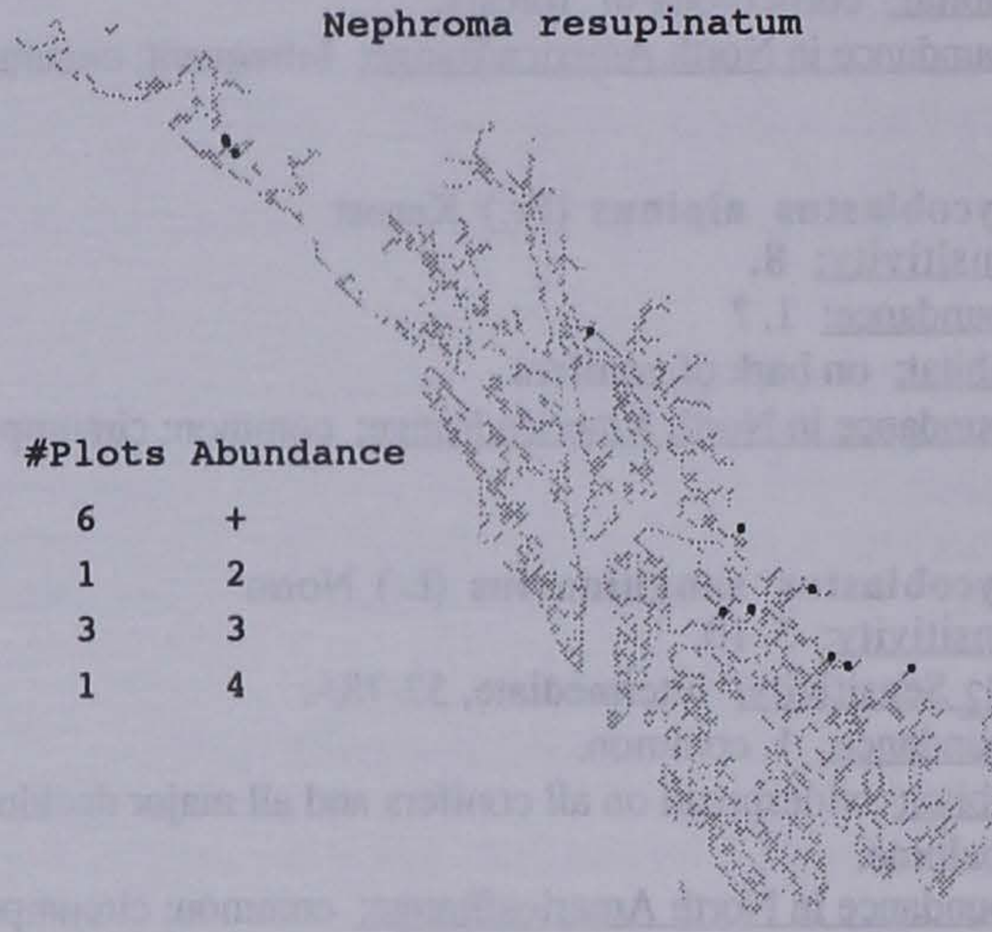
#Plots	Abundance
3	+
1	3

Nephroma parile



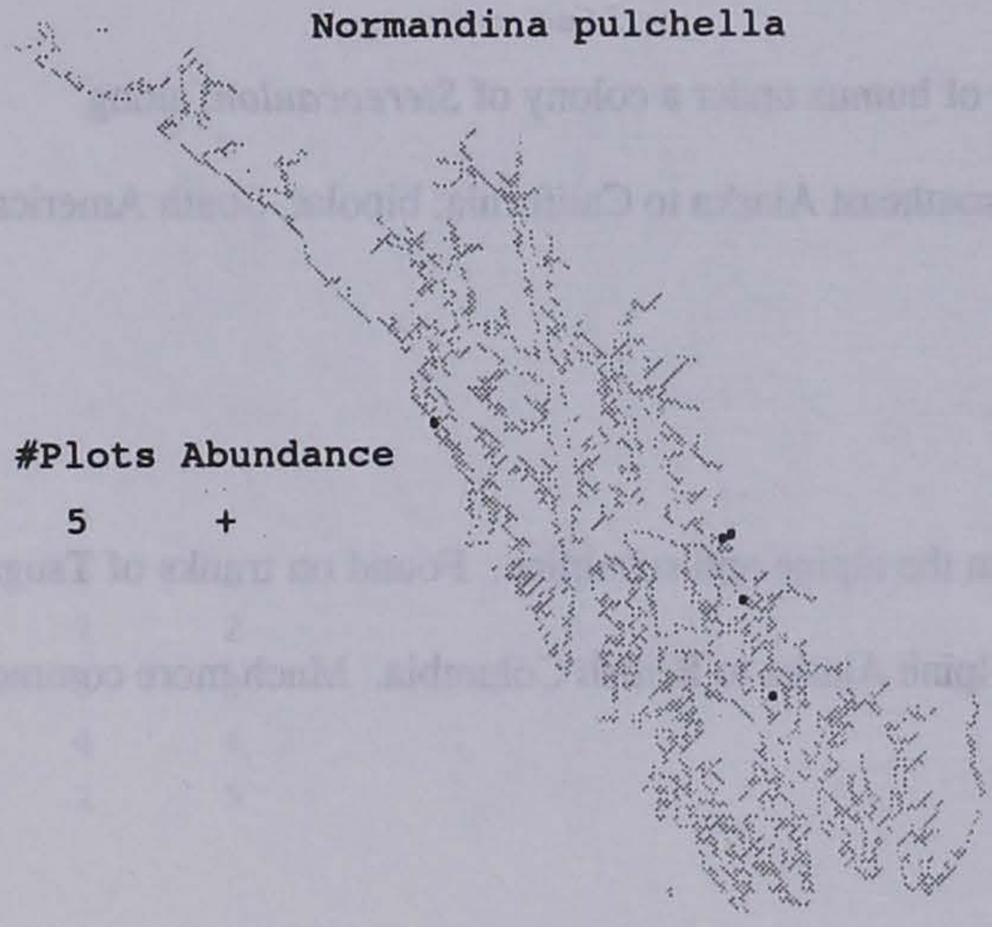
#Plots	Abundance
9	+
4	1
1	2
2	3
1	4
1	5

Nephroma resupinatum



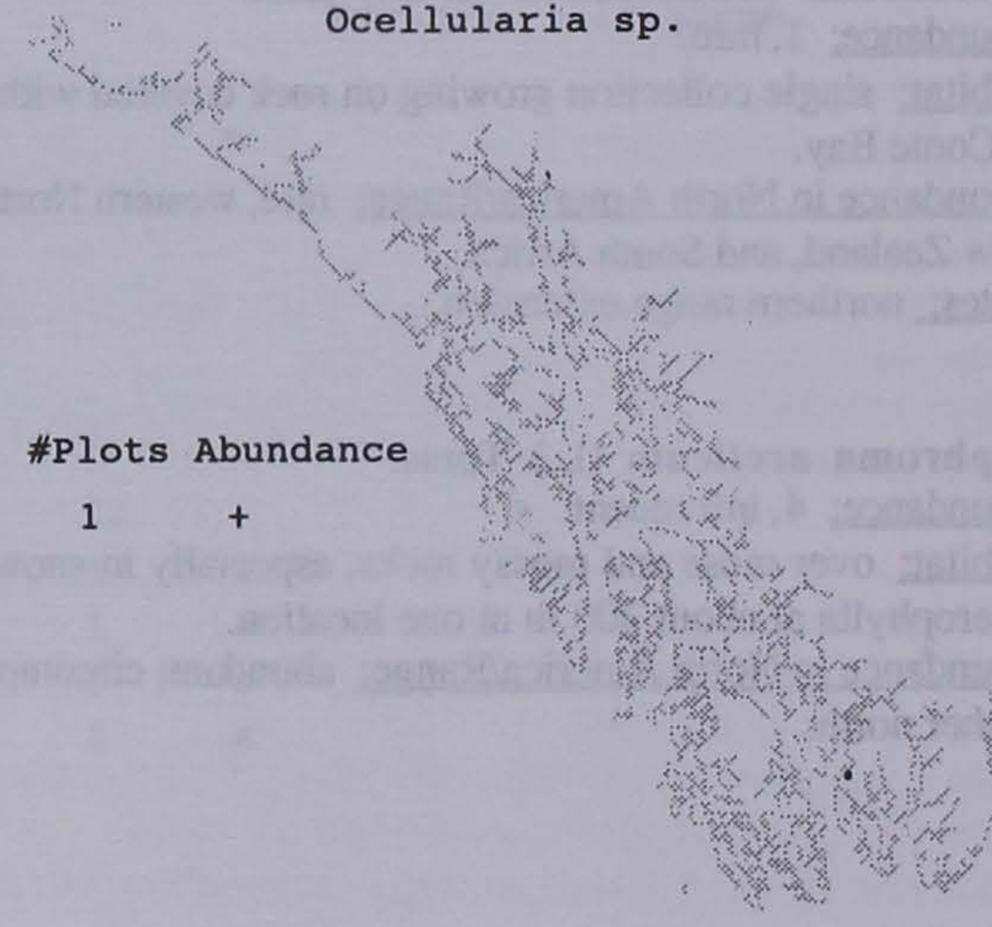
#Plots	Abundance
6	+
1	2
3	3
1	4

Normandina pulchella



#Plots	Abundance
5	+

Ocellularia sp.



#Plots	Abundance
1	+

Nephroma bellum (Spreng.) Tuck.
Sensitivity: 6-9.
Abundance: 35, abundant.
Habitat: over fine branches of most conifers and deciduous trees and shrubs in open to somewhat shaded forests at low elevations. Especially along beach fringes.
Abundance in North America/Range: abundant; circumpolar boreal, southeast Alaska to Arizona.

Nephroma helveticum Ach.
subsp. **helveticum**
subsp. **sipeanum** (Gyeln.) Goward & Ahti
Sensitivity: 8.
Abundance: 20, abundant.
Habitat: over branches of *Picea* and deciduous shrubs in open forests at lower elevations, particularly beach fringes.
Abundance in North America/Range: common; circumpolar boreal, southeast Alaska to Mexico.

Nephroma isidiosum (Nyl.) Gyeln.
Abundance: 14, infrequent.
Habitat: on branches of *Picea* and deciduous trees and shrubs (*Populus*, *Alnus* and *Salix*). Occurring, so far, only on mainland river valleys originating in the British Columbia interior (Unuk and Stikine Rivers) and in the Yakutat low plains.
Abundance in North America/Range: rare; incompletely circumpolar to arctic species, Alaska to British Columbia. Also known from Scandinavia and the Ural mountains.

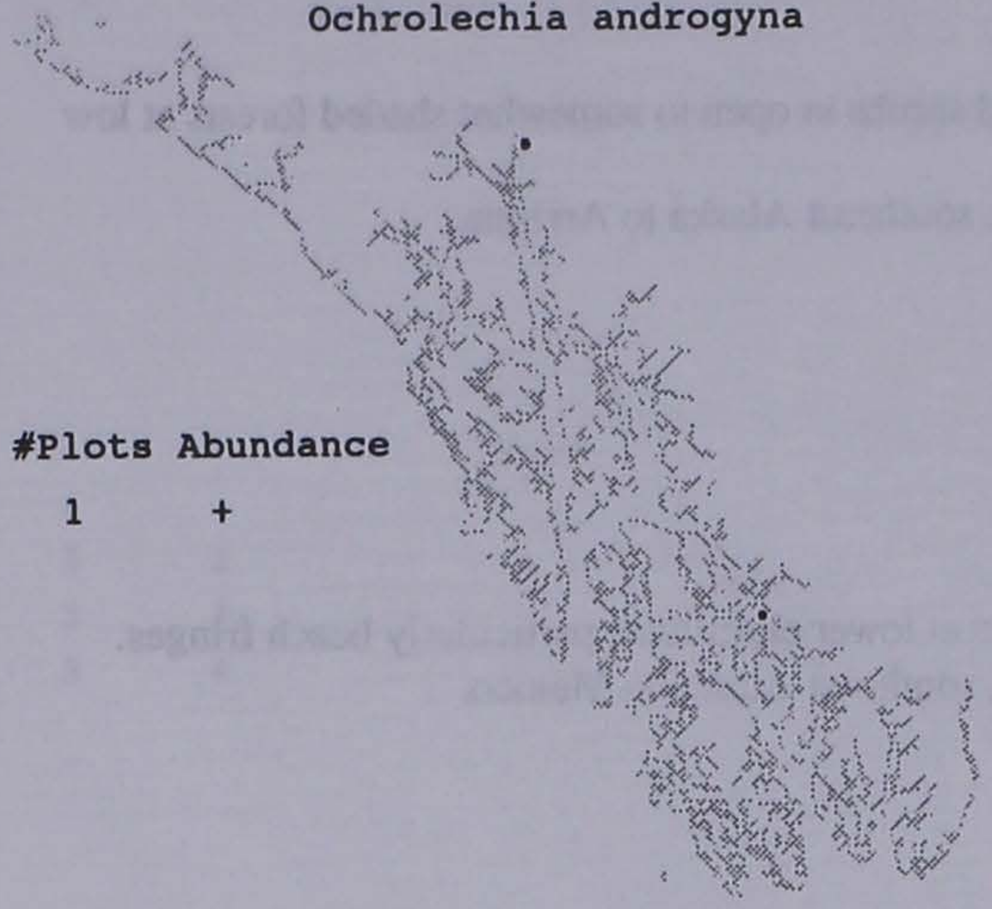
Nephroma laevigatum Ach.
Sensitivity: 8-8.6.
SO_2 Sensitivity: intermediate, -/65.
Abundance: 3, infrequent.
Habitat: on branches of *Picea* and on deciduous shrubs from the Stikine River Valley on the mainland to the Myriad Islands on the outer west coast.
Abundance in North America/Range: common, strictly oceanic species. Incompletely circumpolar, Alaska to California.
Notes: also collected from Faragut Bay in 1899 by Kincaid.

Nephroma parile (Ach.) Ach.
Sensitivity: 8.
Abundance: 19, common.
Habitat: mainly over deciduous trees and shrubs (*Populus*, *Alnus* and *Salix*) but also on spruce in deciduous and spruce stands at low elevations.
Abundance in North America/Range: common; circumpolar boreal, Alaska to Arizona.

Nephroma resupinatum (L.) Ach.
Abundance: 4, common.
Habitat: mainly over deciduous trees and shrubs (*Populus*, *Alnus* and *Salix*) and *Picea* at low elevations.
Abundance in North America/Range: common; circumpolar boreal, Alaska to California.

Normandina pulchella (Borr.) Nyl.
Sensitivity: 7.8-8.6.
SO_2 Sensitivity: sensitive-intermediate, 35/50.
Abundance: 4, rare.
Habitat: over mosses on branches of trees and shrubs, or over other lichens in low elevations to the subalpine.
Abundance in North America/Range: common in North American oceanic habitats, rare in British Columbia. Cosmopolitan distribution outside North America.
Notes: this lichen can be easily over-looked due to its small size.

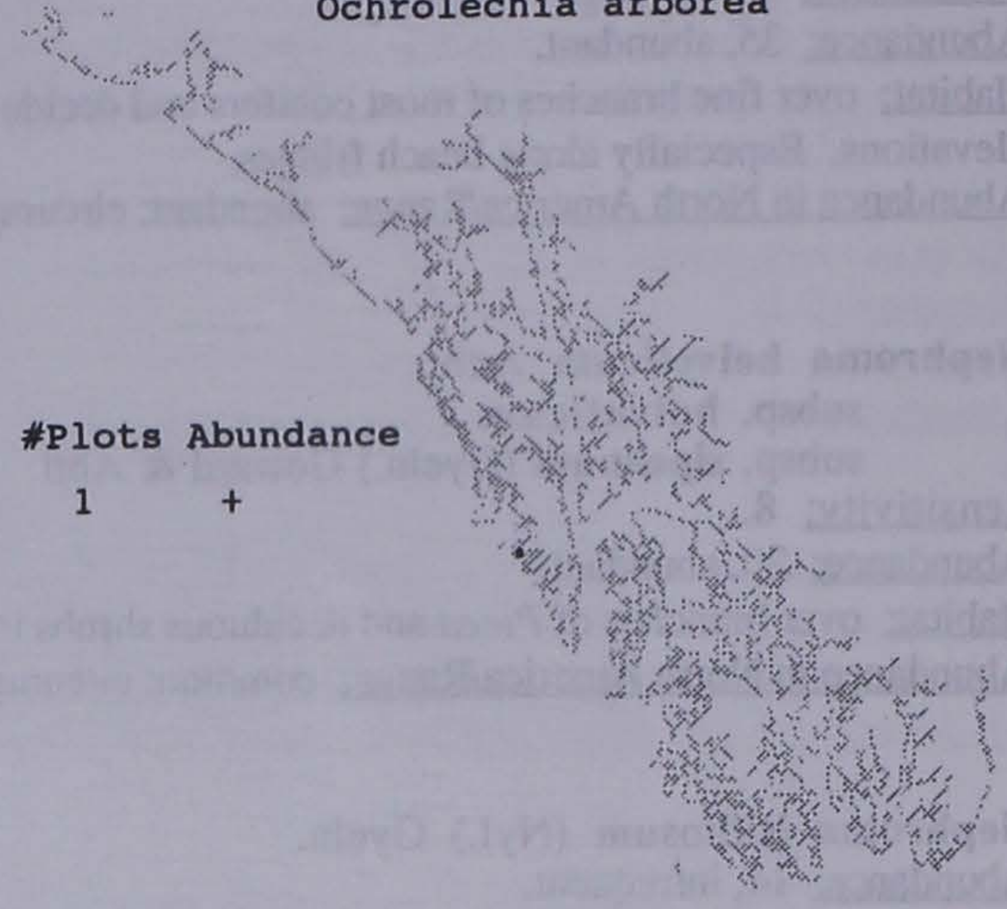
Ochrolechia androgyna



#Plots Abundance

1 +

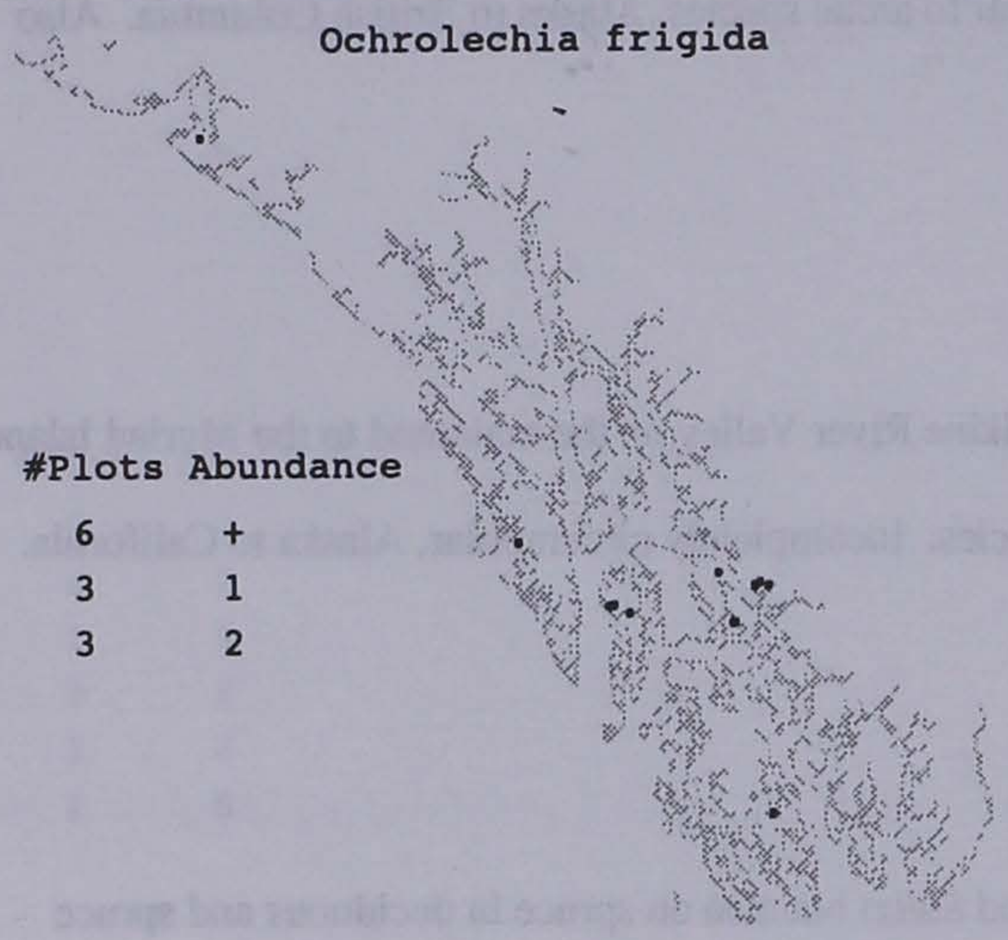
Ochrolechia arborea



#Plots Abundance

1 +

Ochrolechia frigida



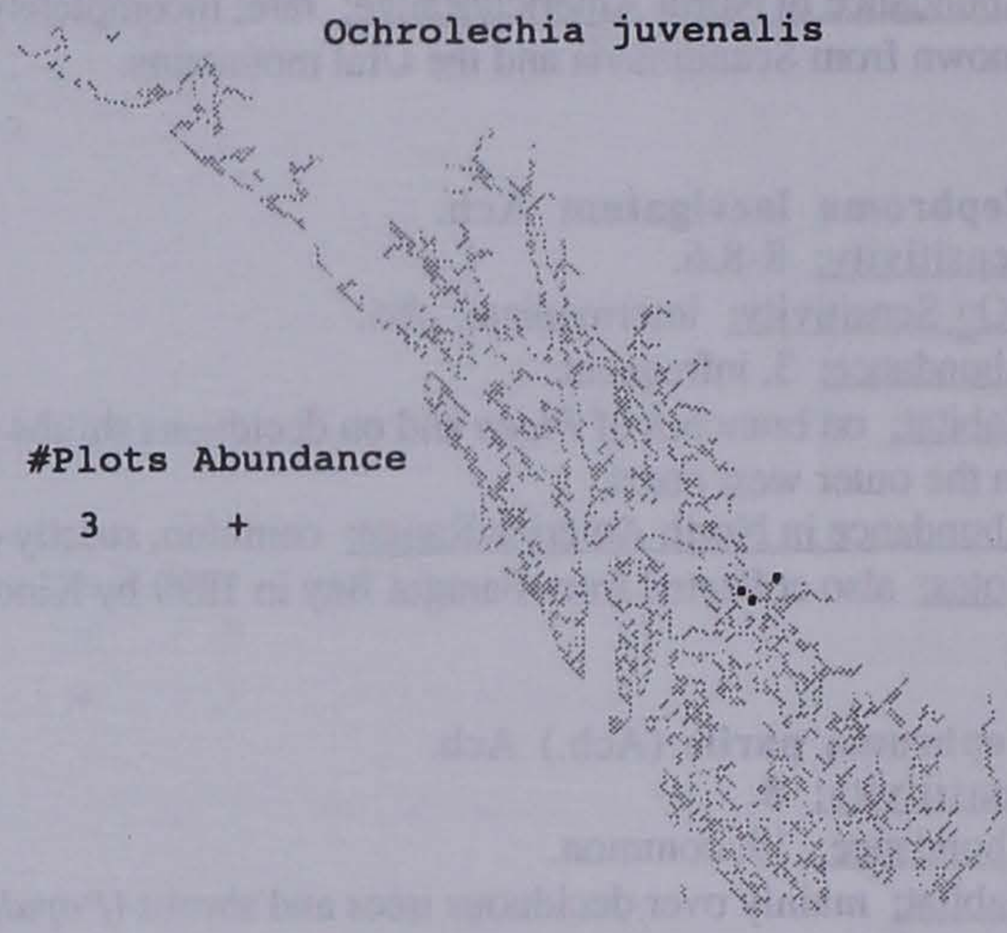
#Plots Abundance

6 +

3 1

3 2

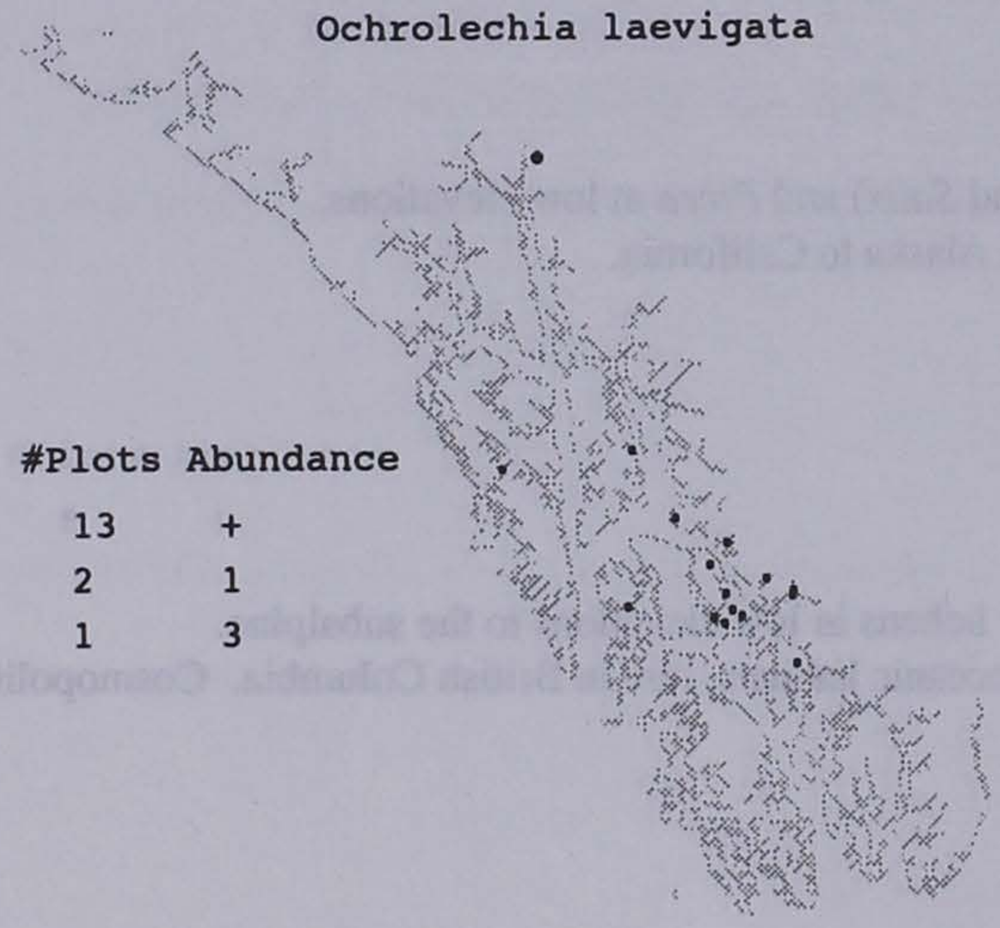
Ochrolechia juvenalis



#Plots Abundance

3 +

Ochrolechia laevigata



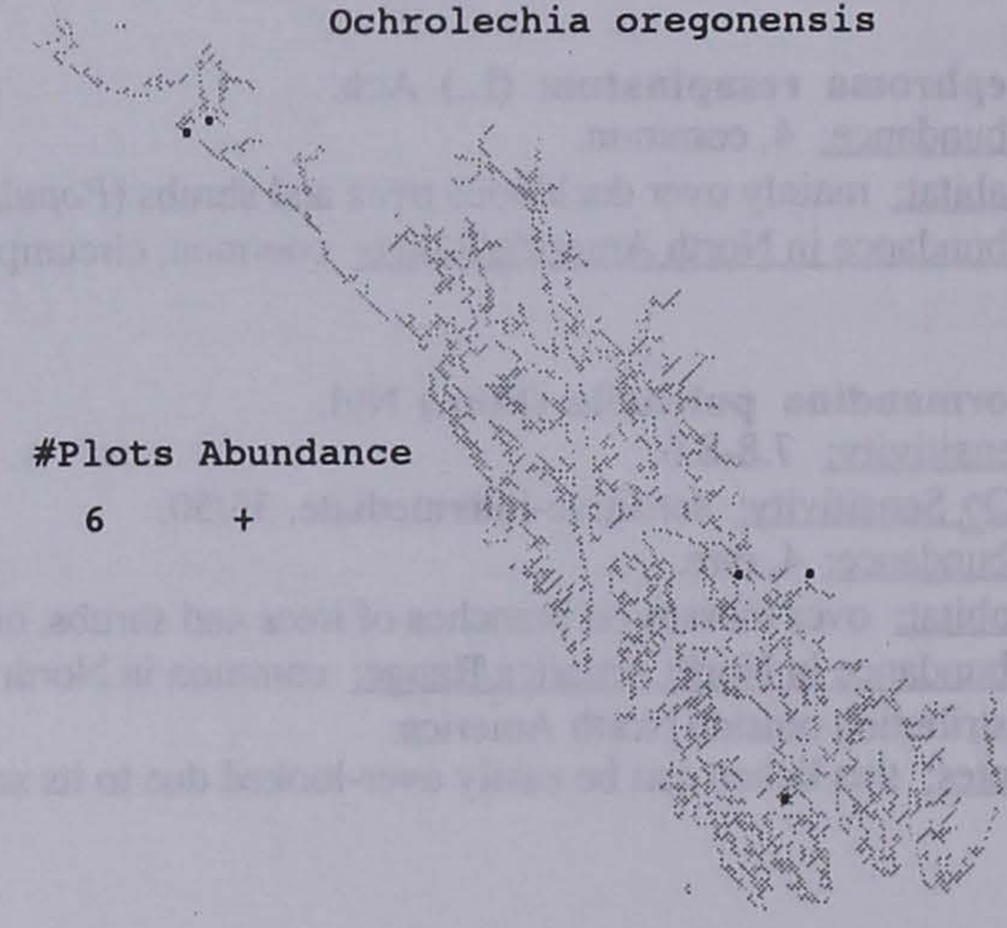
#Plots Abundance

13 +

2 1

1 3

Ochrolechia oregonensis



#Plots Abundance

6 +

Ocellularia sp. #1
Abundance: 1, ?
Habitat: on bark of *Alnus*.

Ochrolechia androgyna (Hoffm.) Arnold
Sensitivity: 9.
SO_2 Sensitivity: sensitive, 26-34/34-52.
Abundance: 2, ?
Habitat: on deciduous and coniferous tree bark, wood, rocks and over mosses and vegetation. In humid, forested habitats especially along lake shores and peatlands (Brodo, 1991).
Abundance in North America/Range: common; circumpolar, boreal to arctic, and in the Sierra Nevada of California.

Ochrolechia arborea (Kreyer) Almb.
Sensitivity: 8.
Abundance: 1, ?
Habitat: On bark and wood of conifers and deciduous trees and shrubs. In open forests or along beaches, e.g. *Pinus contorta* and spruce stands (Brodo, 1991).
Abundance in North America/Range: common; mainly in the Great Lakes Region with scattered localities in the boreal forests, coastal Washington, the Black Hills and the southern Appalachians.
Notes: first Alaskan record.

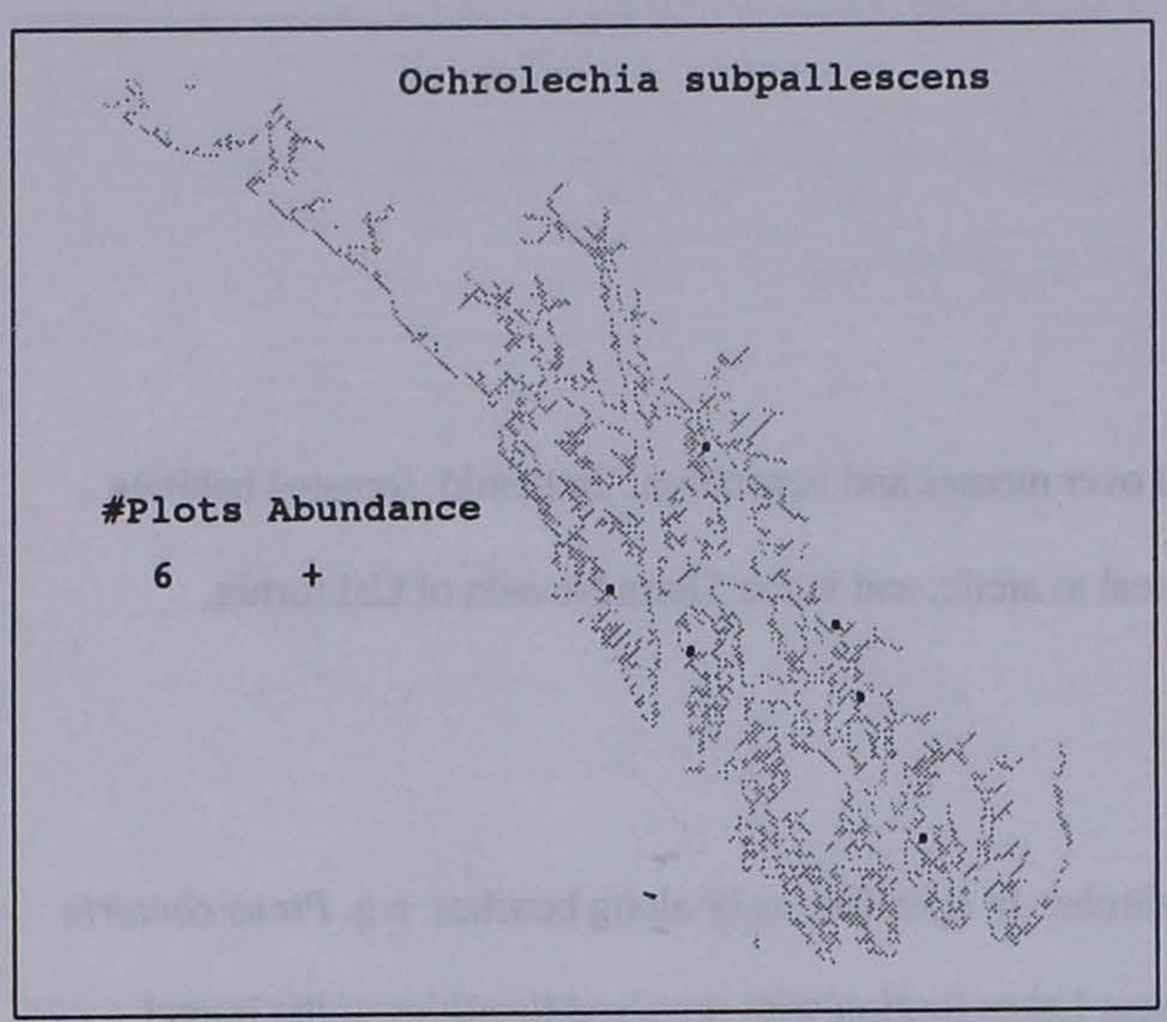
Ochrolechia frigida (Sw.) Lynge
f. **thelephoroides** (Th. Fr.) Lynge
Abundance: 13, common.
Habitat: primarily on rocks or soil in the alpine and subalpine, but also on bark or lignum in open forests at lower elevations.

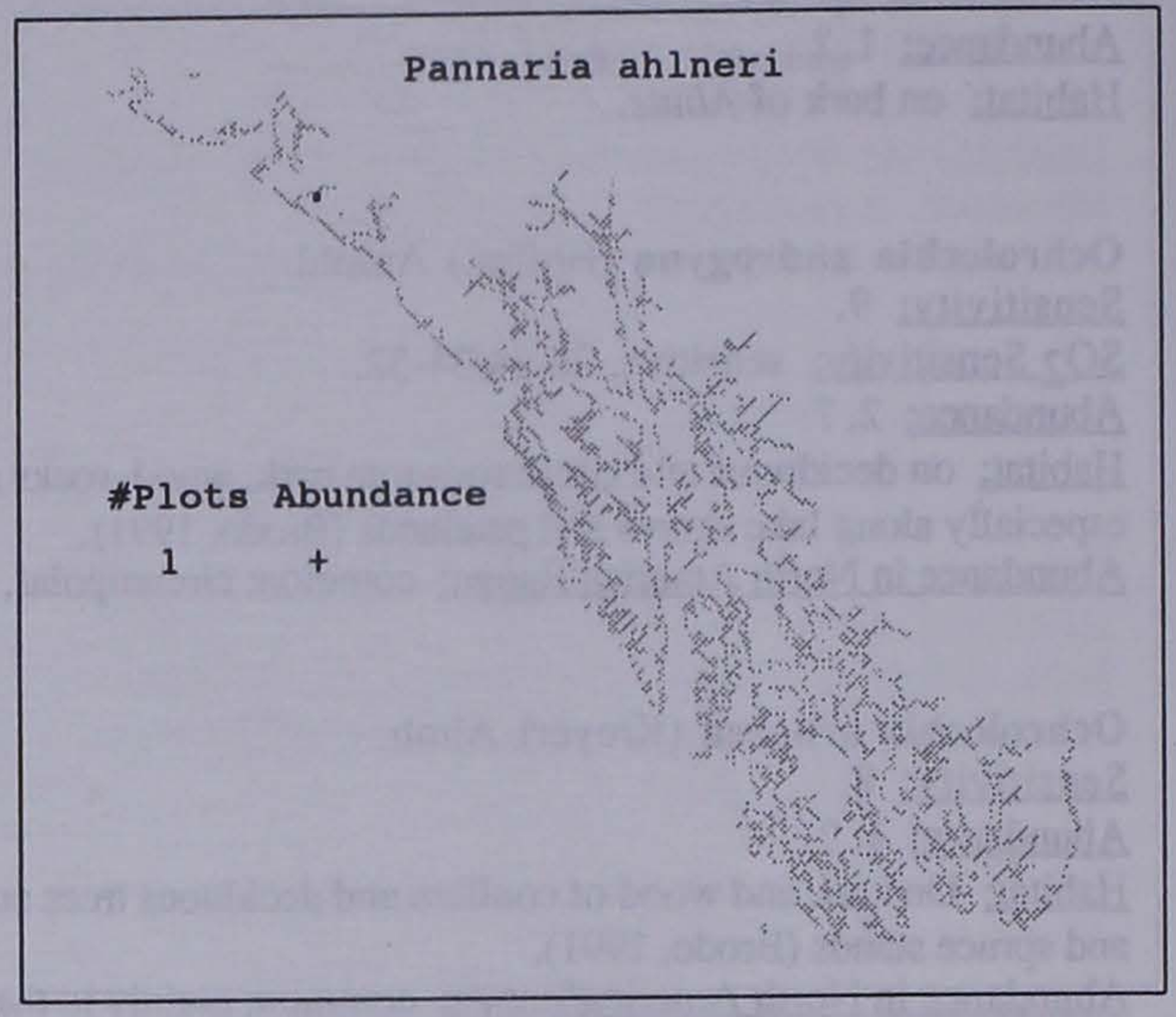
Ochrolechia juvenalis Brodo
Abundance: 3, common.
Habitat: on conifer bark or lignum, and on *Alnus*. Mainly in low elevation conifer forests.
Abundance in North America/Range: common within a limited range; western North America from southeast Alaska to California, east to northwestern Montana.
Notes: northern range extension, first Alaskan record.

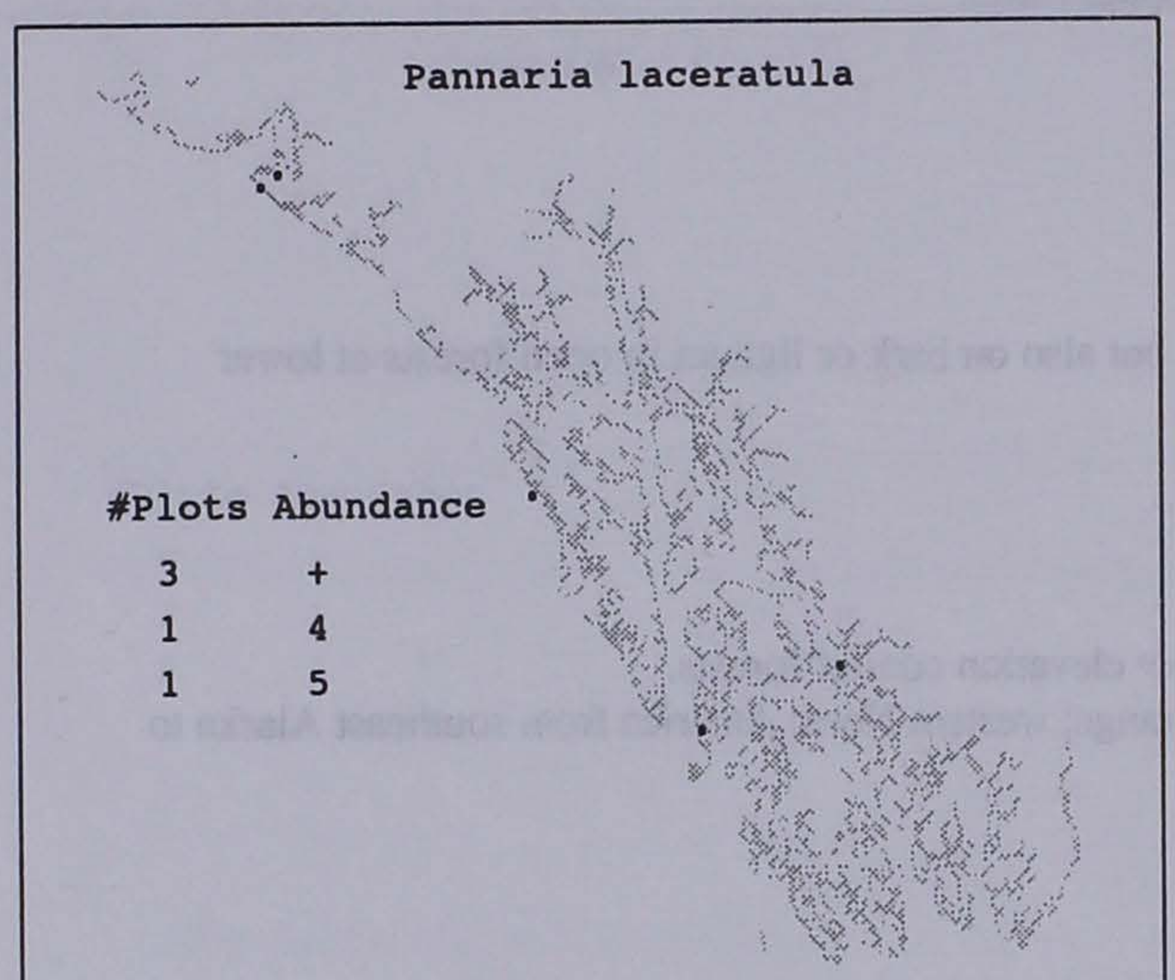
Ochrolechia laevigata (Räsänen) Vers.
Abundance: 13, common.
Habitat: smooth-barked, deciduous trees like *Alnus*, but also *Picea*, *Pinus* and *Tsuga*. Mostly lowland spruce-alder but also in many coniferous forest types, especially along streams and beaches at low elevations.
Abundance in North America/Range: endemic to the North American west coast, from Alaska to California.

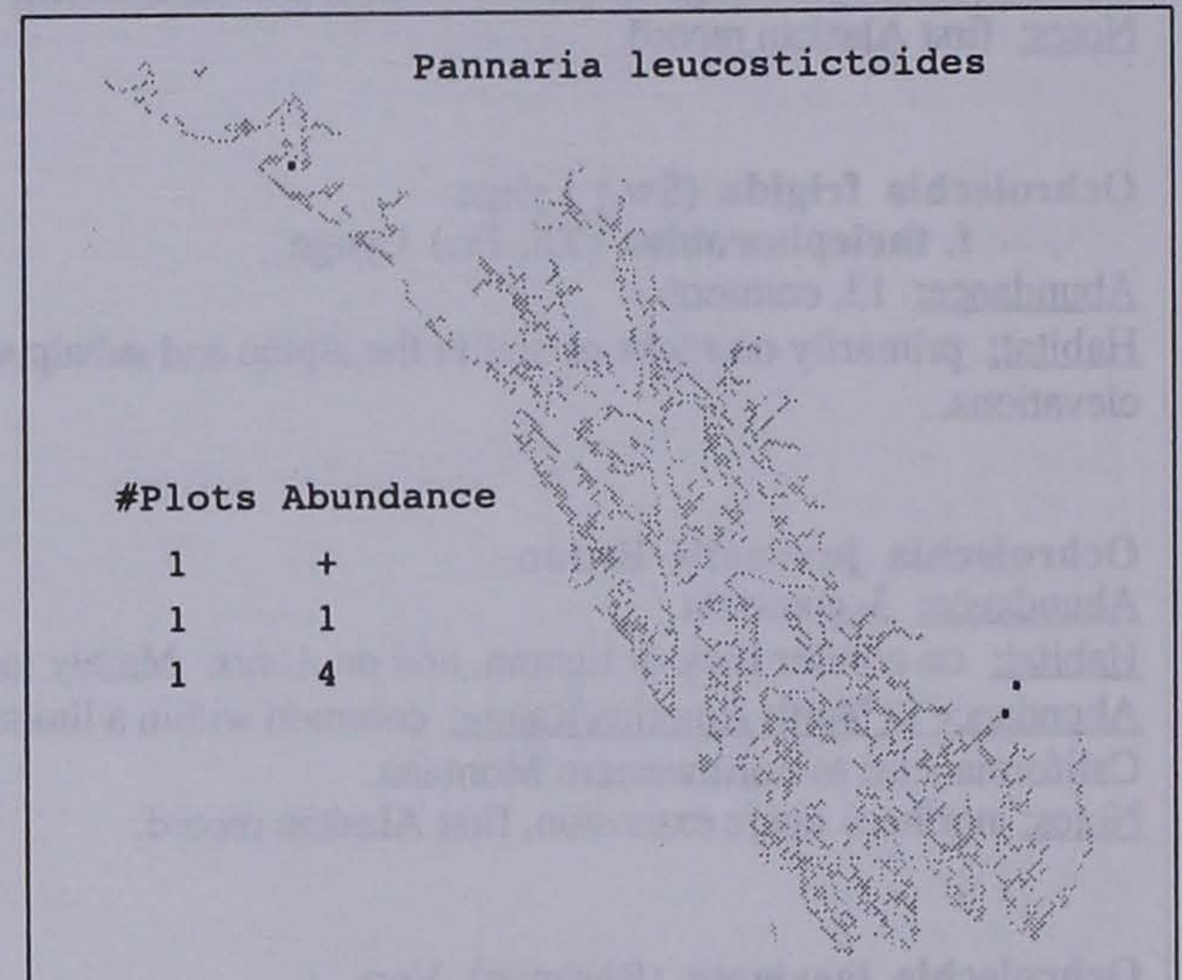
Ochrolechia oregonensis H. Magn.
Abundance: 6, common.
Habitat: on conifer bark (*Pinus* and *Picea*) or lignum; rarely on *Alnus*. Shorepine forests and deciduous/spruce stands at low elevations.
Abundance in North America/Range: common; western North American endemic, from Alaska to California, mainly along the coast.

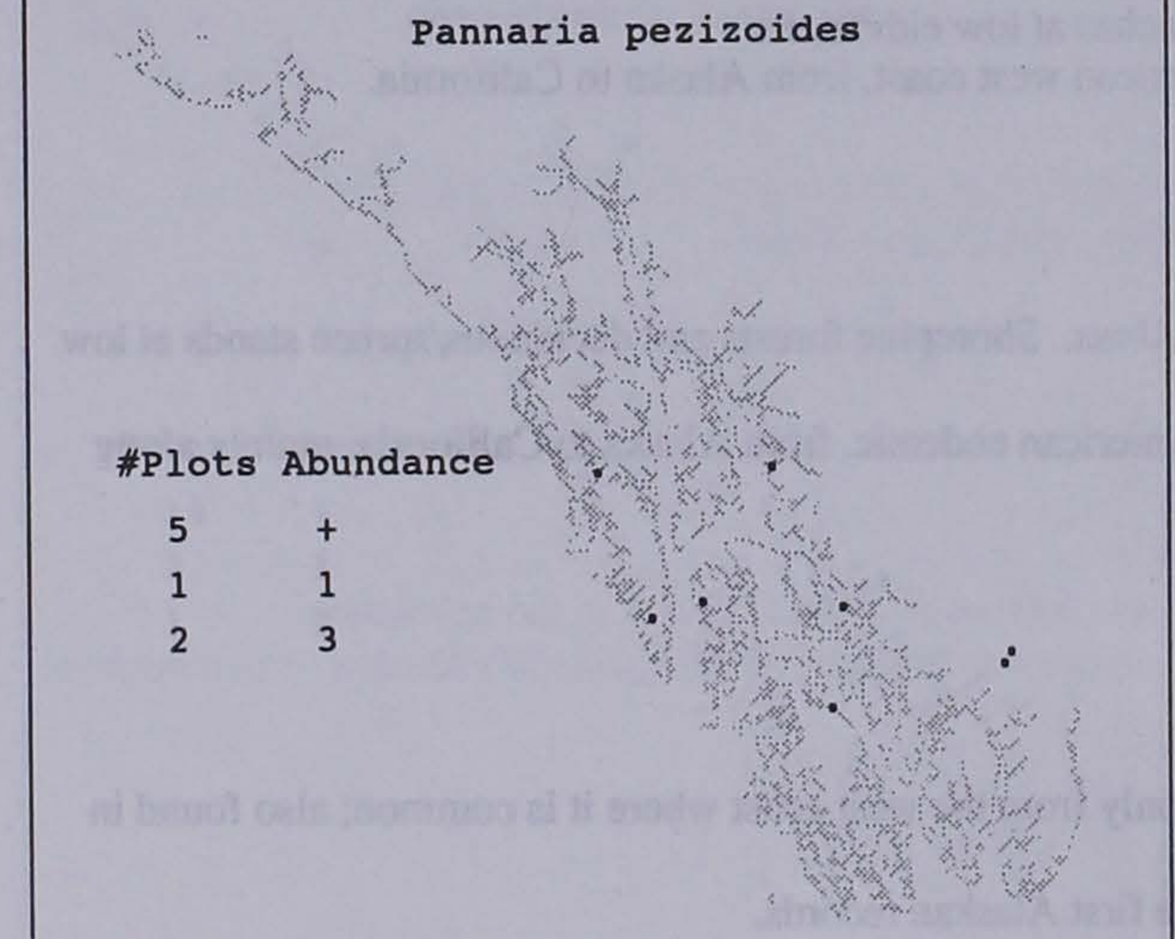
Ochrolechia subpallescens Vers.
Abundance: 6, common.
Habitat: on bark of cottonwood and conifers (Brodo, 1991).
Abundance in North America/Range: in North America known only from the west coast where it is common; also found in Asia, India, Brazil and western Australia.
Notes: known from the Queen Charlotte Islands, but these are the first Alaskan records.

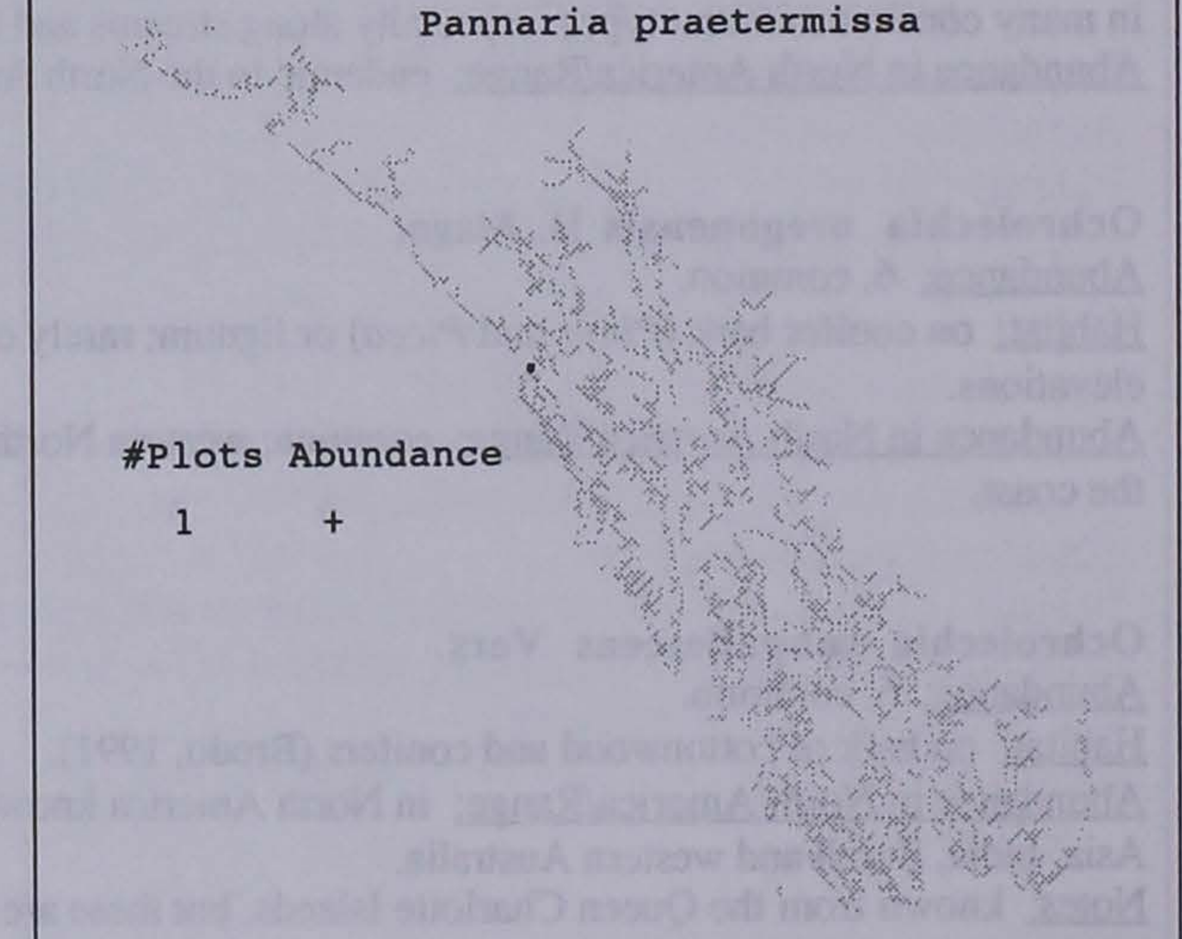

Ochrolechia subpallescens
#Plots Abundance
6 +


Pannaria ahlneri
#Plots Abundance
1 +


Pannaria laceratula
#Plots Abundance
3 +
1 4
1 5


Pannaria leucostictoides
#Plots Abundance
1 +
1 1
1 4


Pannaria pezizoides
#Plots Abundance
5 +
1 1
2 3


Pannaria praetermissa
#Plots Abundance
1 +

Ochrolechia tartarea (L.) Massal.
Abundance: 0, ?
Habitat: on rock.
Abundance in North America/Range: common in Europe where it can grow in large sheets. All American rock-dwelling *Ochrolechia* are smaller.
Notes: not collected in this study but previously documented from Port San Antonio, Baker Island; Heceta Island; Shipley Bay, Kosciusko Island (Herre, 1919). These reports should be confirmed as *Ochrolechia* growing on rock were routinely grouped under the name *O. tartarea* until recently.

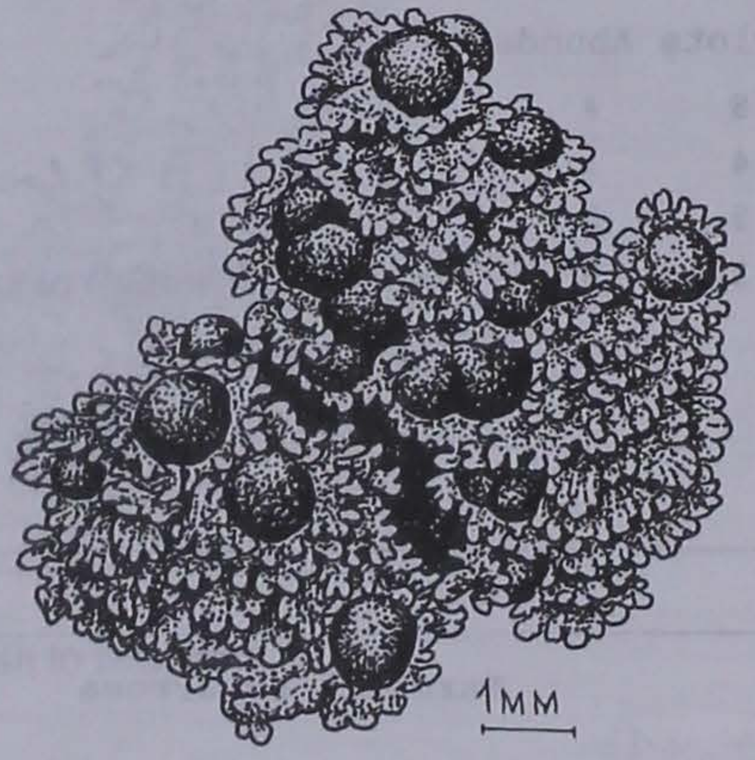
Opegrapha rupestris Pers.
Abundance: 0, ?
Habitat: on rocks in the bay.
Abundance in North America/Range: widespread in North America and Europe.
Notes: reported from Prince of Wales Island (Herre, 1919). Usually associated with moist limestone or calcareous schists (Purvis et al., 1992).

Ophioparma lapponica (Räsänen) Hafellner & R. W. Rogers
see *Haematomma lapponicum.*

Pannaria ahlneri P. Jorg.
Abundance: 1, rare.
Habitat: over conifers at low elevation. Only collection was on *Picea sitchensis* from Yakutat.
Abundance in North America/Range: rare; incompletely circumpolar, in North America previously known only from British Columbia and Appalachians, where it occurs infrequently. Occurs in Western Norway, Japan, and Siberia.
Notes: first Alaskan record

Pannaria laceratula Hue
Abundance: 4, infrequent?
Habitat: over conifers and *Alnus* at low elevations.
Abundance in North America/Range: rare; known from southeast Alaska and Asia, frequent on the Queen Charlotte Islands.

Pannaria leucophaea (Vahl) P. Jorg.
Abundance: 3, ?
Habitat: on *Populus trichocarpa* or over other lichens. So far found only on the mainland in Yakutat and the Unuk River valley.
Abundance in North America/Range: widespread in North America, Europe and Macronesia.
Notes: expected on sheltered, basic, moist rocks and on tree bases in sheltered coastal beaches or lake sites (Purvis et al., 1992).

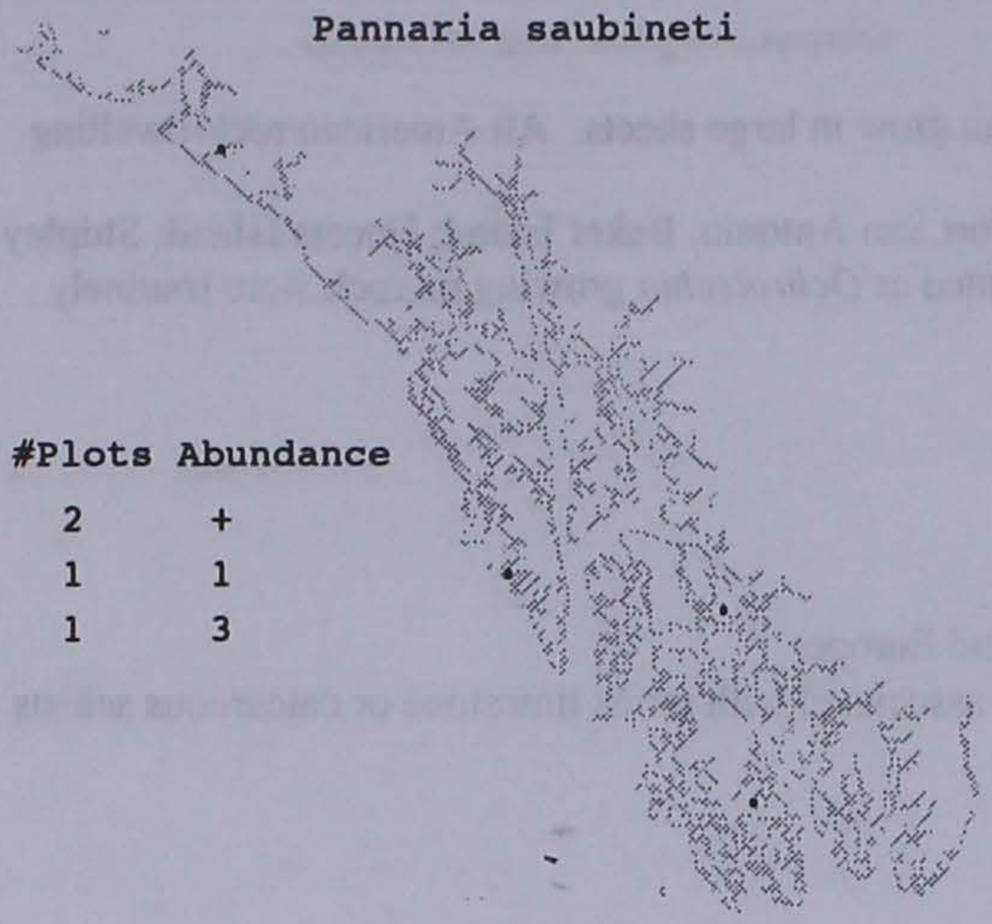


Pannaria leucophaea

Pannaria leucostictoides Ohls.
Abundance: 1, infrequent?
Habitat: over conifers and deciduous trees, especially bases of trees, or over other lichens in open forests.
Abundance in North America/Range: infrequent-rare; Pacific North West North American endemic, Alaska to California.

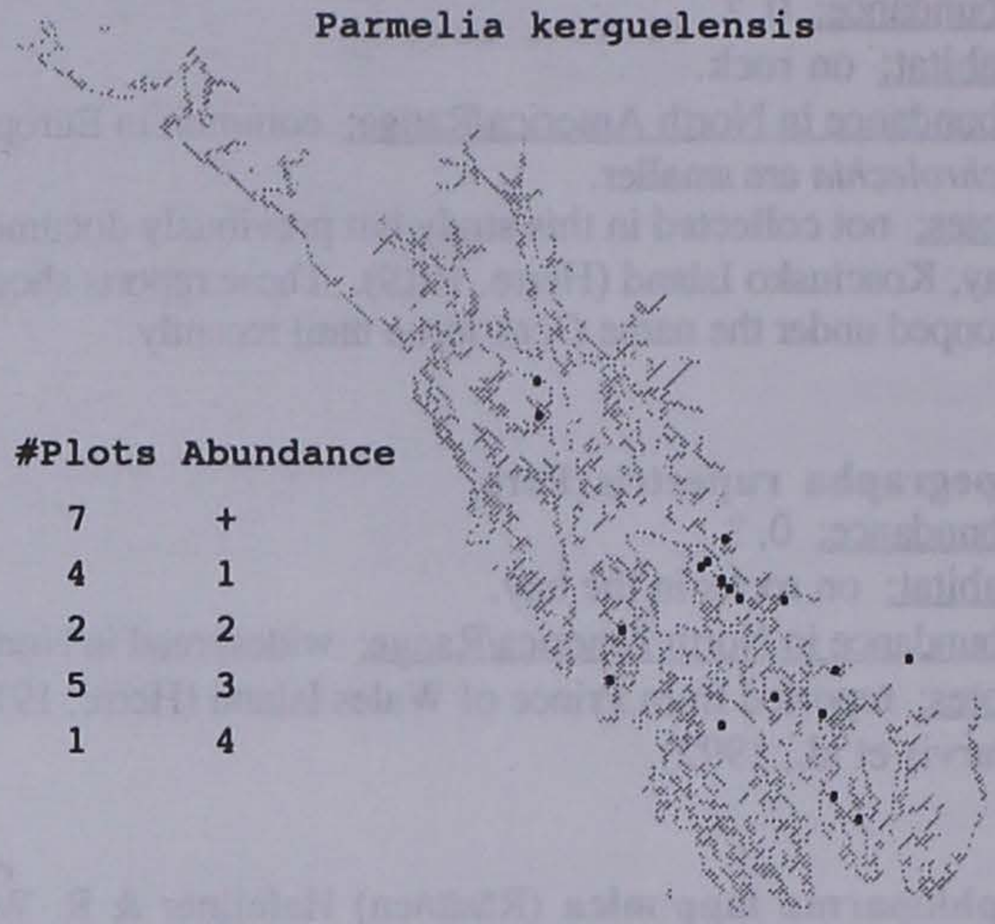
Pannaria maritima P. Jorg.
Abundance: 0, ?
Habitat: over thin moss and rock near the upper tide line.
Abundance in North America/Range: western North American endemic, southeast Alaska to Oregon.
Notes: collected by R. O'Clair (University of Alaska, Southeast). Intergrades with *P. praetermissa*, from which it may be difficult to distinguish.

Pannaria saubineti



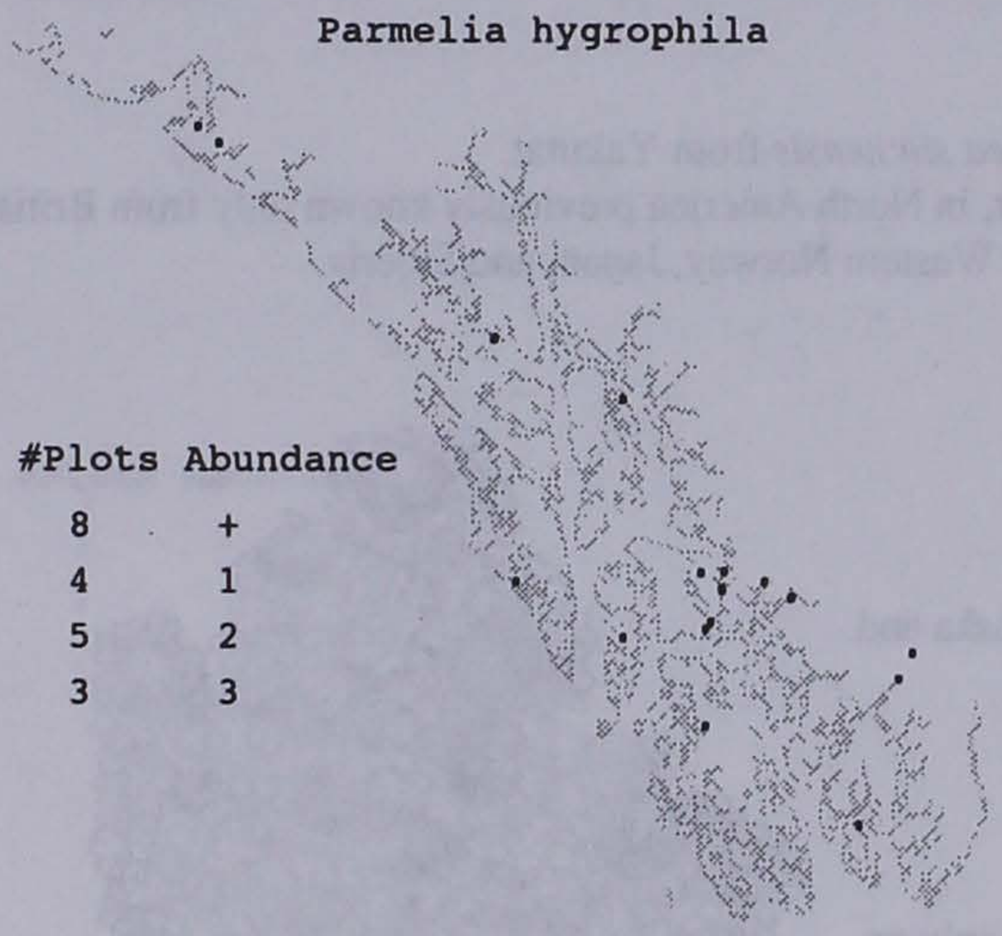
#Plots	Abundance
2	+
1	1
1	3

Parmelia kerguelensis



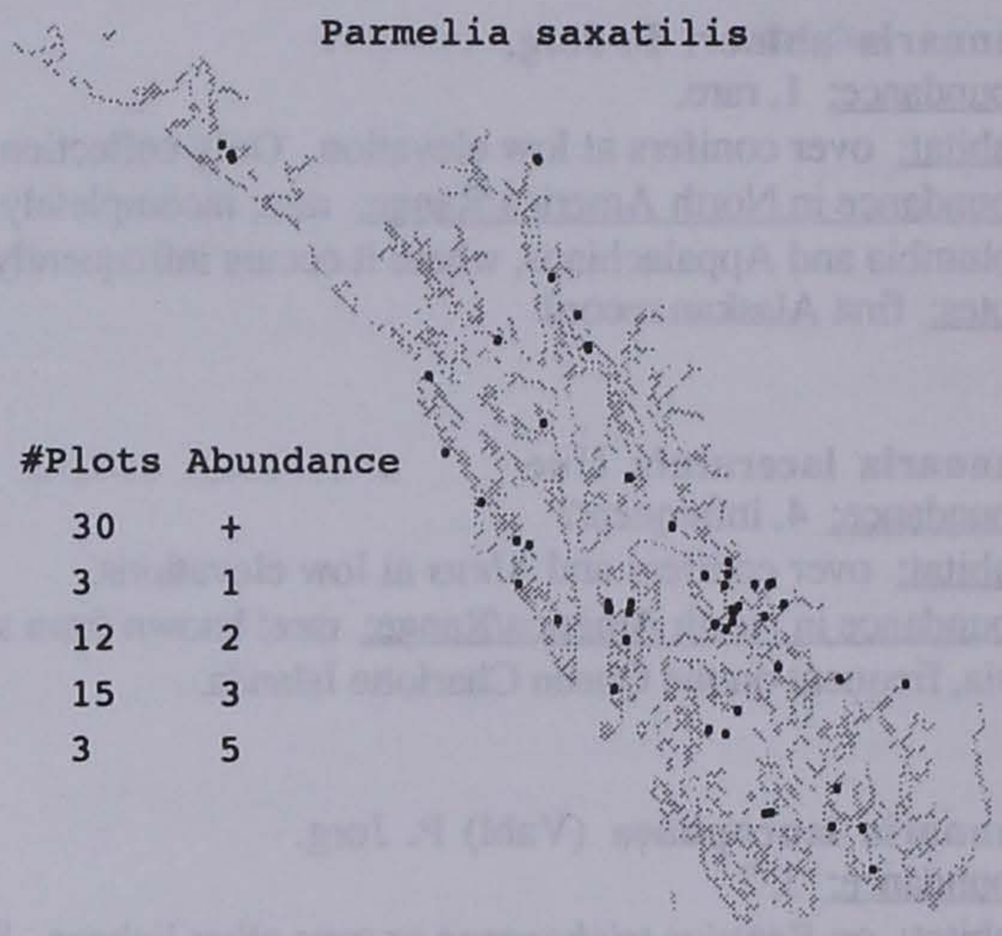
#Plots	Abundance
7	+
4	1
2	2
5	3
1	4

Parmelia hygrophila



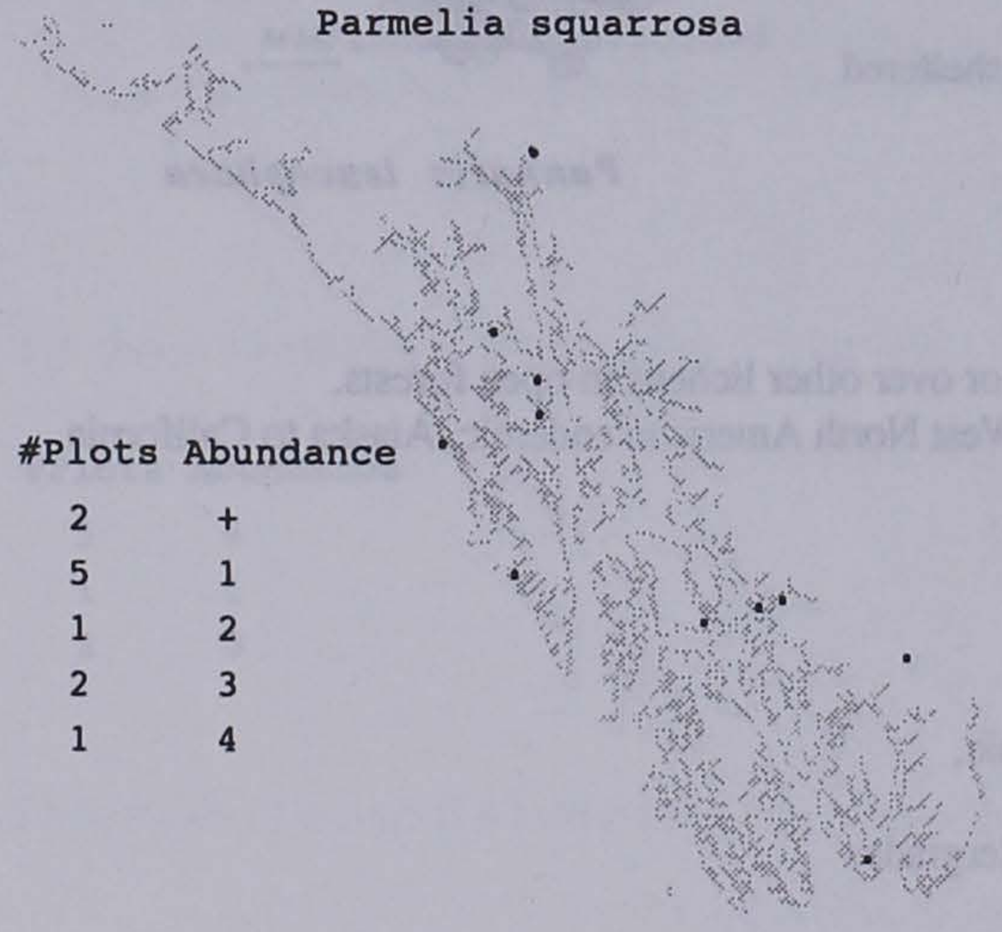
#Plots	Abundance
8	+
4	1
5	2
3	3

Parmelia saxatilis



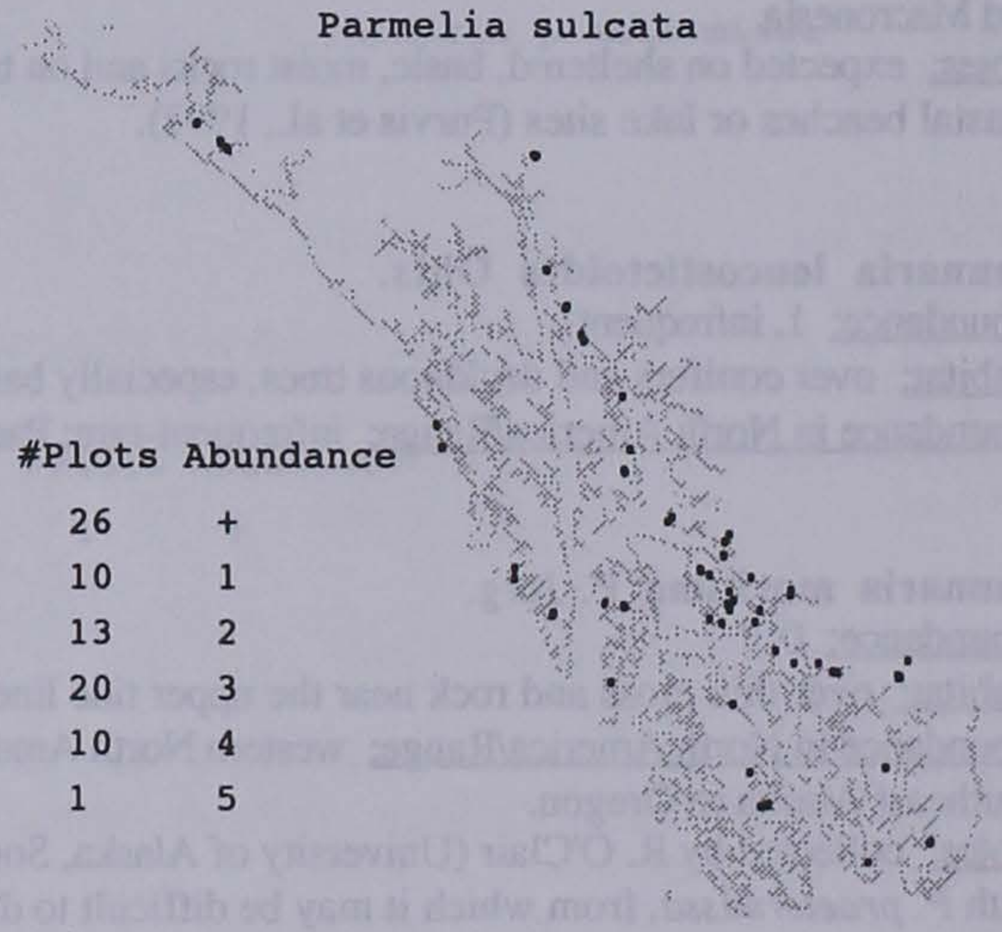
#Plots	Abundance
30	+
3	1
12	2
15	3
3	5

Parmelia squarrosa



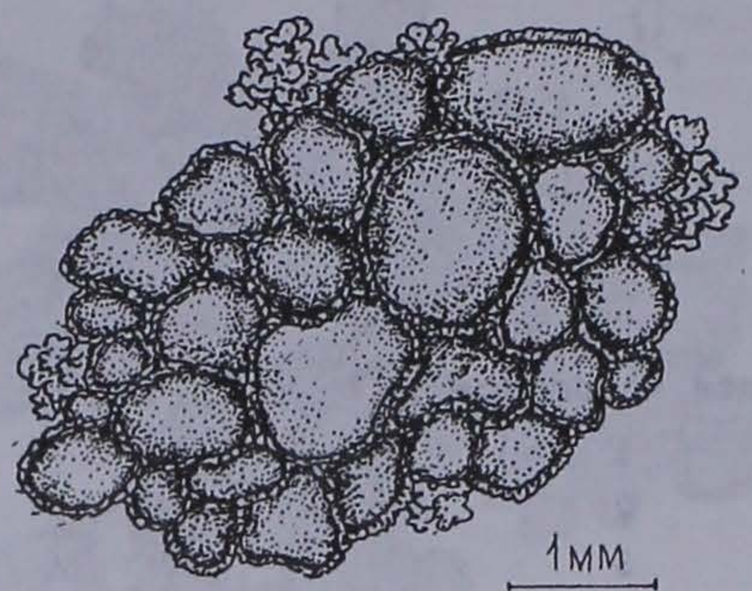
#Plots	Abundance
2	+
5	1
1	2
2	3
1	4

Parmelia sulcata



#Plots	Abundance
26	+
10	1
13	2
20	3
10	4
1	5

Pannaria pezizoides (Web.) Trevisan
Abundance: 6, common.
Habitat: on bark of deciduous trees and shrubs (*Populus, Alnus, Malus*) and *Picea*. Also associated with mosses over rock or in rock crevices in various forest types from low elevation to the subalpine.
Abundance in North America/Range: common; circumpolar arctic-alpine, south to California and New Mexico.



Pannaria pezizoides

Pannaria praetermissa Nyl. in Chyd. & Furuhj.
Abundance: 1, ?
Habitat: single collection growing with moss on thin soil overlying rock along a beach on southwest Chichagof Islands.
Abundance in North America/Range: common; circumpolar low arctic and boreal, south to California.

Pannaria saubineti (Mont.) Nyl.
Abundance: 5, infrequent.
Habitat: over rock with mosses and/or humus; over conifers and deciduous trees in various forest types, from low elevation to the subalpine.
Abundance in North America/Range: infrequent-rare; western North America (southeastern Alaska to California), western Eurasia and infrequent in the Mediterranean.

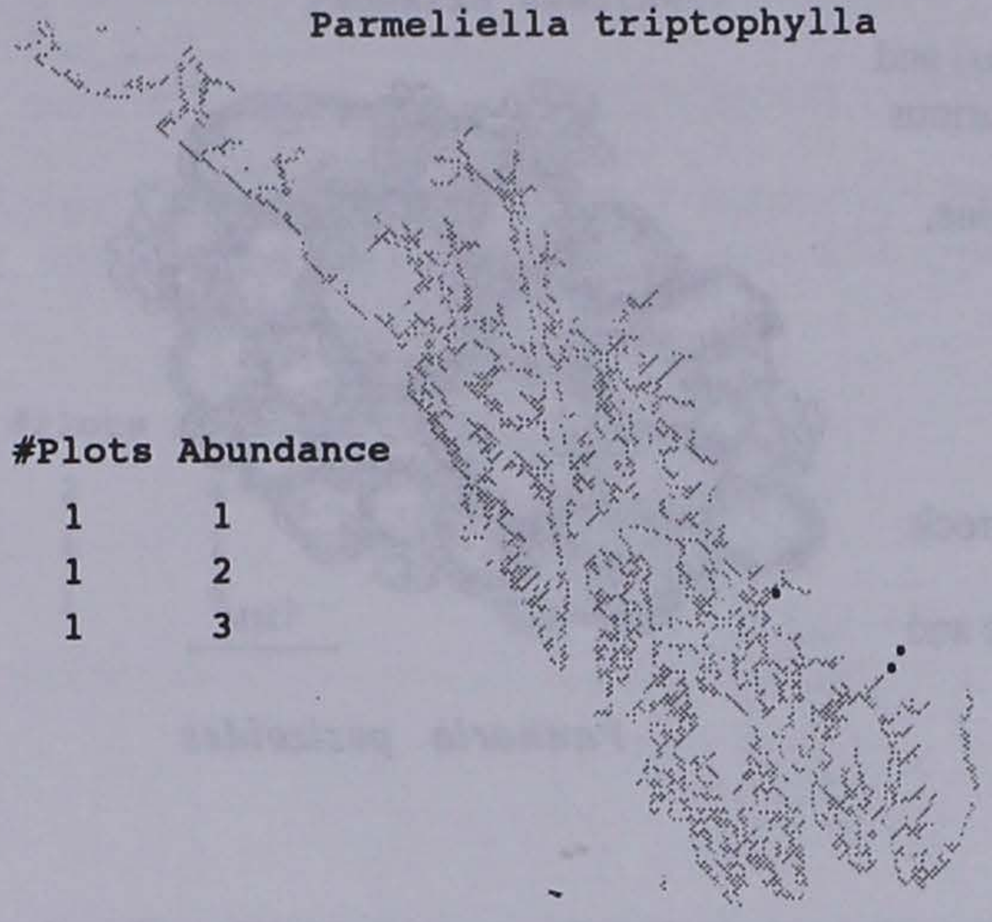
Parmelia hygrophila Goward & Ahti
Abundance: 19, common.
Habitat: over trees (*Picea, Pinus, Alnus* and *Populus*) in most low elevation forest types; also rare over base-rich rock.
Abundance in North America/Range: common; western North America, Alaska to Oregon.

Parmelia kerguelensis Crombie
Abundance: 19, common.
Habitat: over conifers (and *Populus*?) in most low elevation forest types.
Abundance in North America/Range: infrequent; western North America, Alaska to California.

Parmelia omphalodes (L.) Ach.
Sensitivity: 8.5.
Abundance: 0, ?
Habitat: over siliceous rock in open sites.
Abundance in North America/Range: infrequent; circumpolar arctic-alpine, south to Missouri.
Notes: reported from Saxman village near Ketchikan (Krog, 1968).

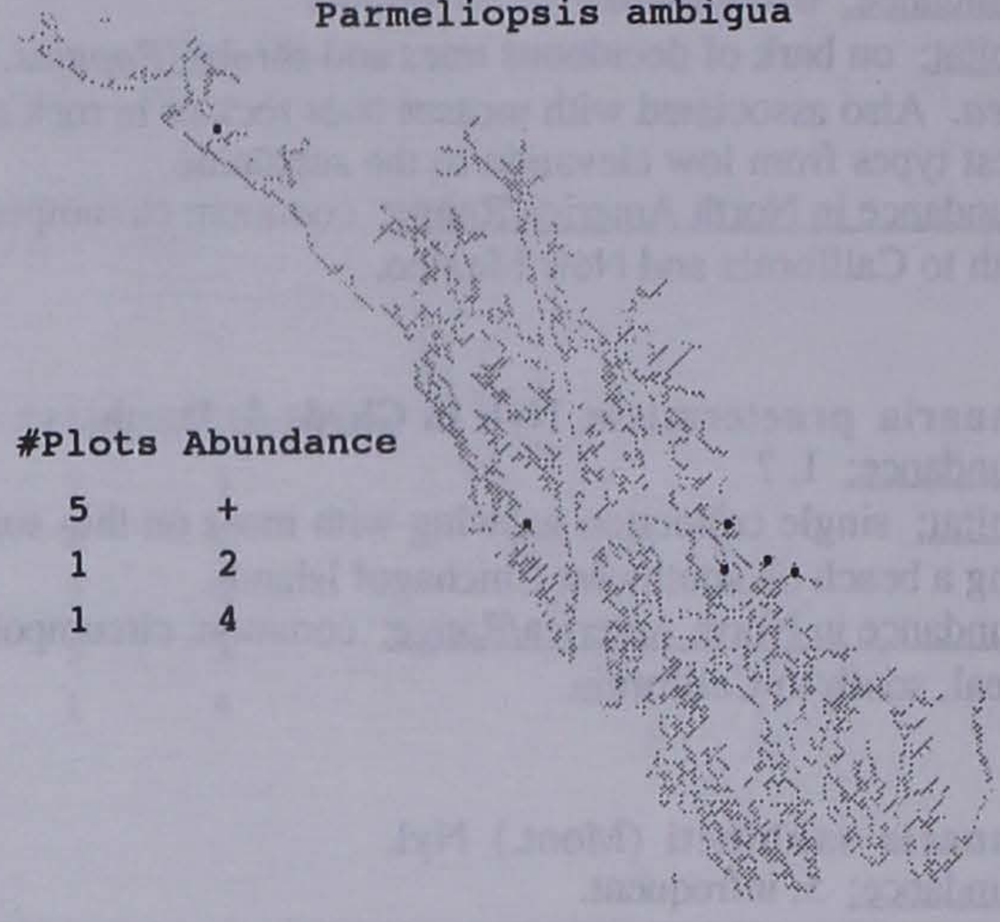
Parmelia saxatilis (L.) Ach.
Sensitivity: 1.7-8.9.
SO_2 Sensitivity: intermediate, 34-52/52-78.
Abundance: 62, abundant.
Habitat: over rock in open sites from beaches to the alpine. Very common over bark and lignum of conifers and deciduous shrubs (*Alnus, Malus)* in many forest types, particularly *Pinus contorta* peatlands and edge communities. Widespread.
Abundance in North America/Range: abundant; circumpolar arctic-alpine.

Parmeliella triptophylla



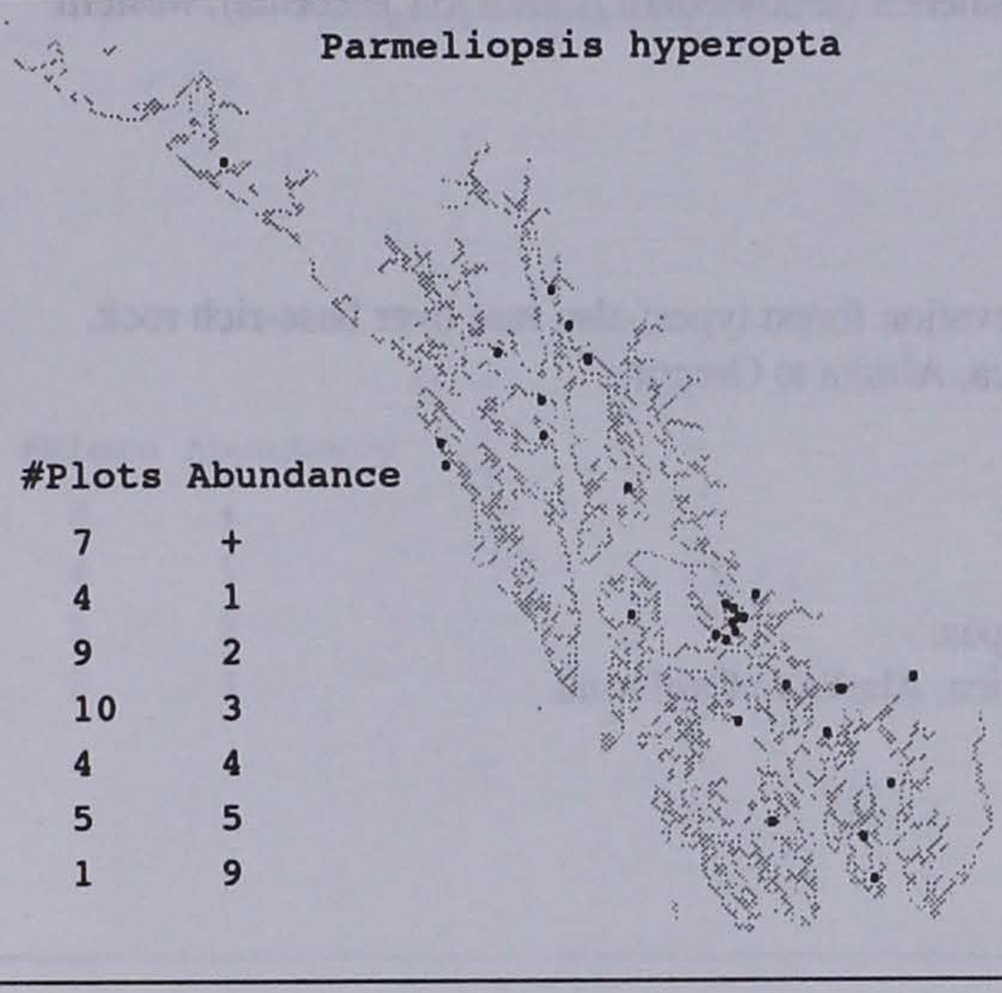
#Plots	Abundance
1	1
1	2
1	3

Parmeliopsis ambigua



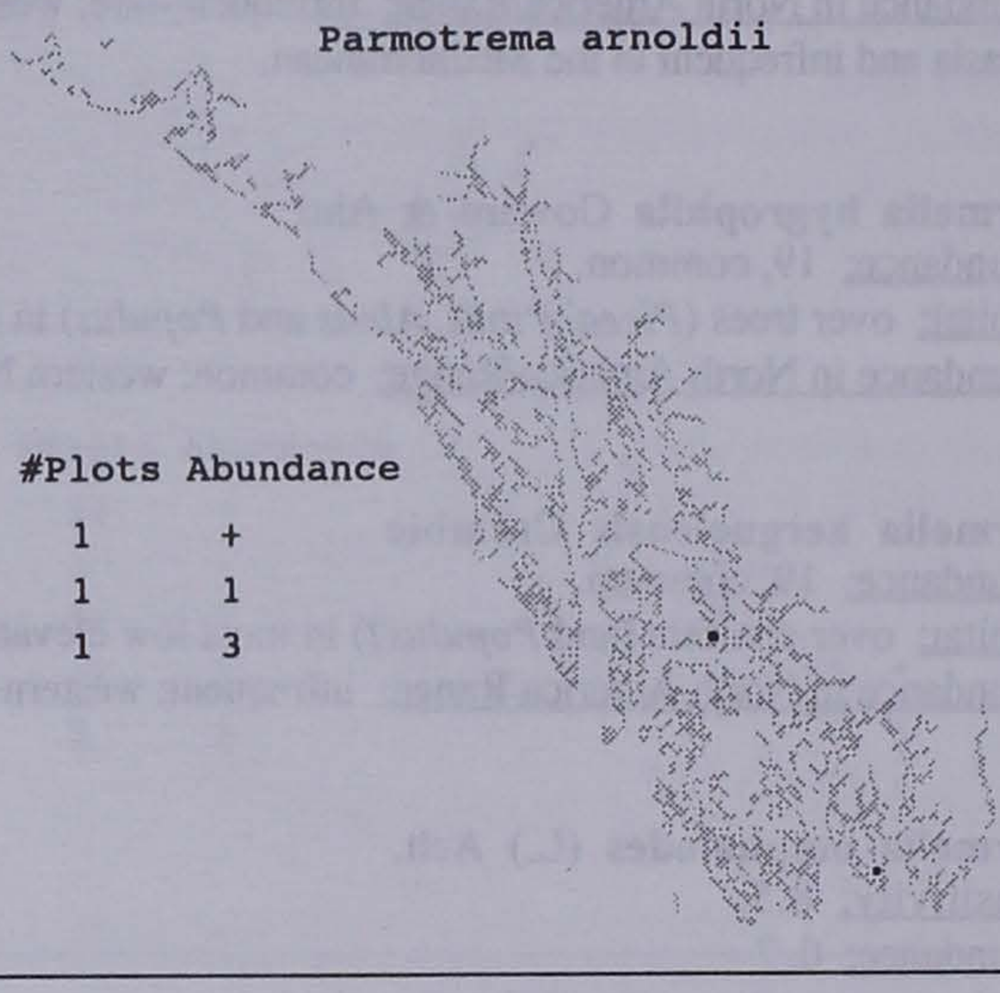
#Plots	Abundance
5	+
1	2
1	4

Parmeliopsis hyperopta



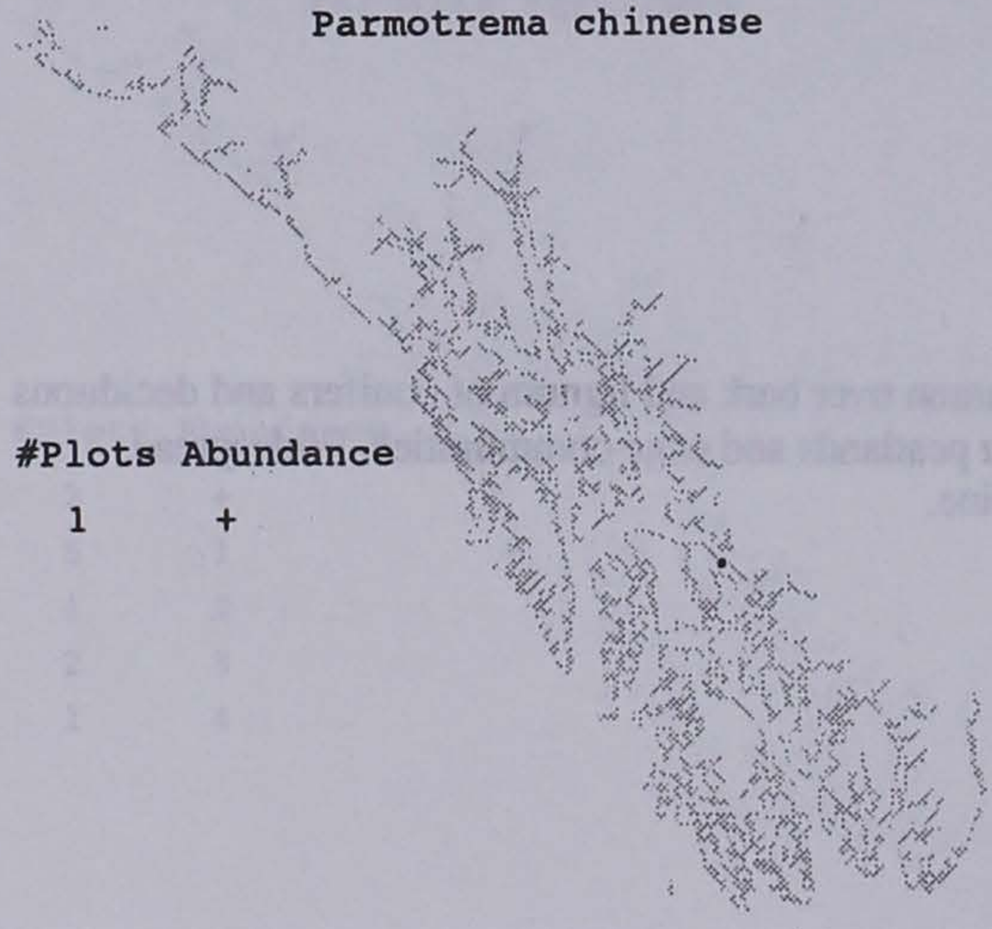
#Plots	Abundance
7	+
4	1
9	2
10	3
4	4
5	5
1	9

Parmotrema arnoldii



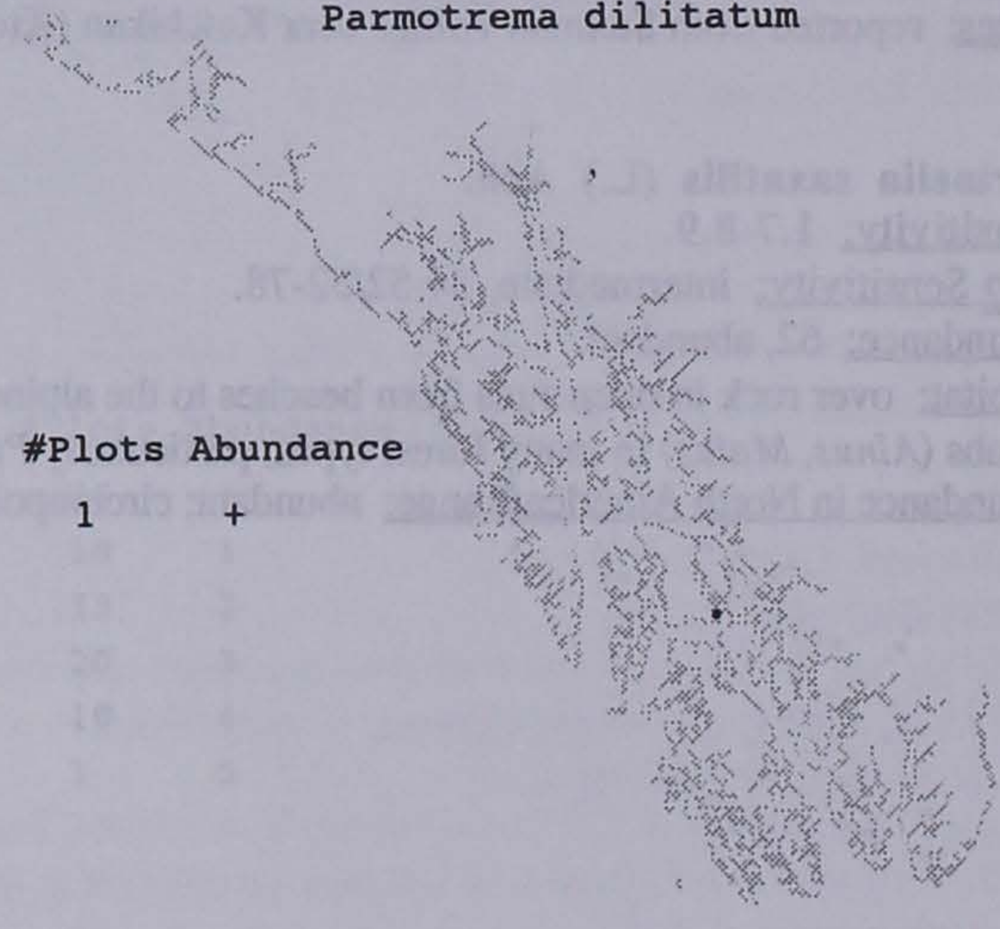
#Plots	Abundance
1	+
1	1
1	3

Parmotrema chinense



#Plots	Abundance
1	+

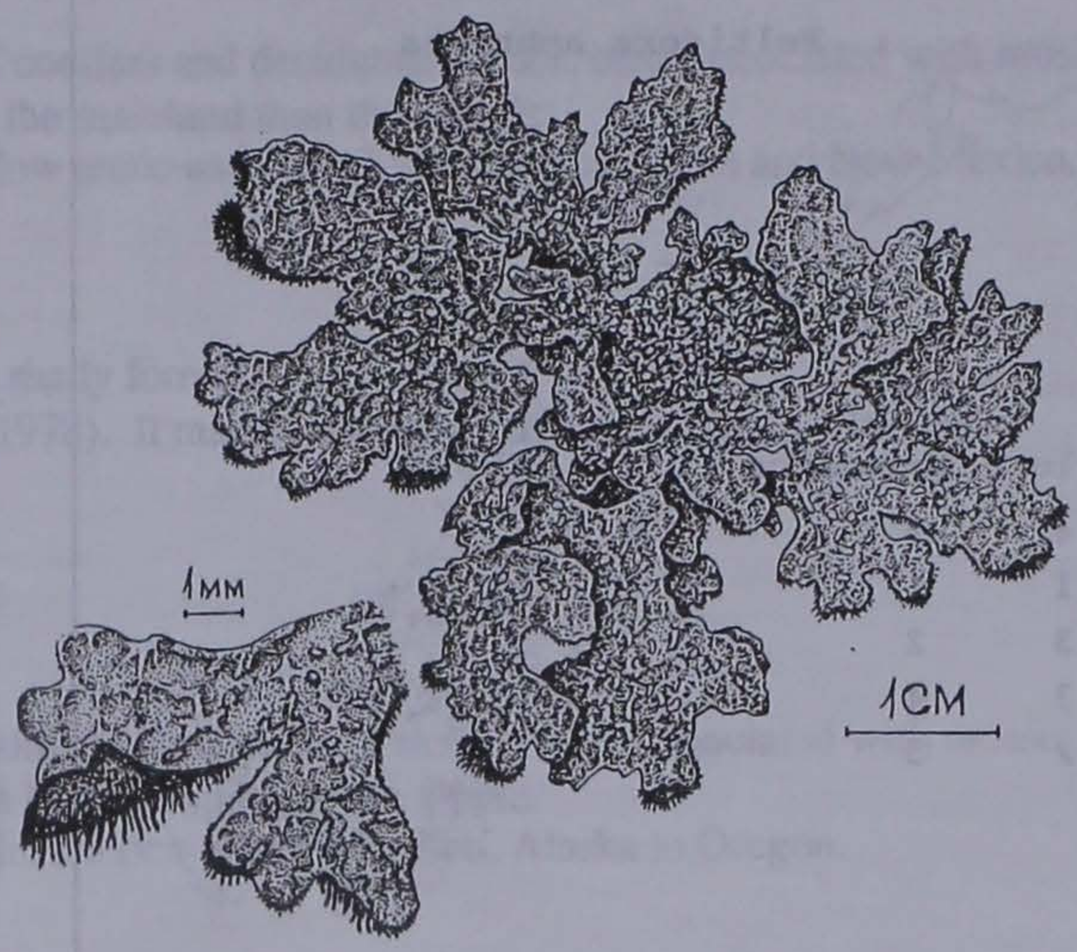
Parmotrema dilitatum



#Plots	Abundance
1	+

Parmelia squarrosa Hale
SO_2 Sensitivity: sensitive, 26-39/40.
Abundance: 12, common.
Habitat: over conifers and deciduous trees and shrubs, occasionally on rock in open forests at lower elevations.
Abundance in North America/Range: common; circumpolar boreal, south to California.

Parmelia sulcata Tayl.
Sensitivity: 1.8-8.9.
SO_2 Sensitivity: intermediate-tolerant, 52-100/95.
Abundance: 79, abundant.
Habitat: over trees throughout, also infrequent over acid rock; widespread.
Abundance in North America/Range: abundant; circumpolar boreal, Alaska to California.



Parmelia sulcata

Parmeliella triptophylla (Ach.) Müll. Arg.
Sensitivity: 8.
Abundance: 3, infrequent.
Habitat: over deciduous trees and shrubs (*Populus*, *Alnus*) at low elevations.
Abundance in North America/Range: infrequent, seldom collected in North America and probably overlooked; circumpolar boreal. In western North America from Alaska south to Oregon. Also known from Europe, Iceland, Greenland, Kamchatka, Madeira and the Canary Is.

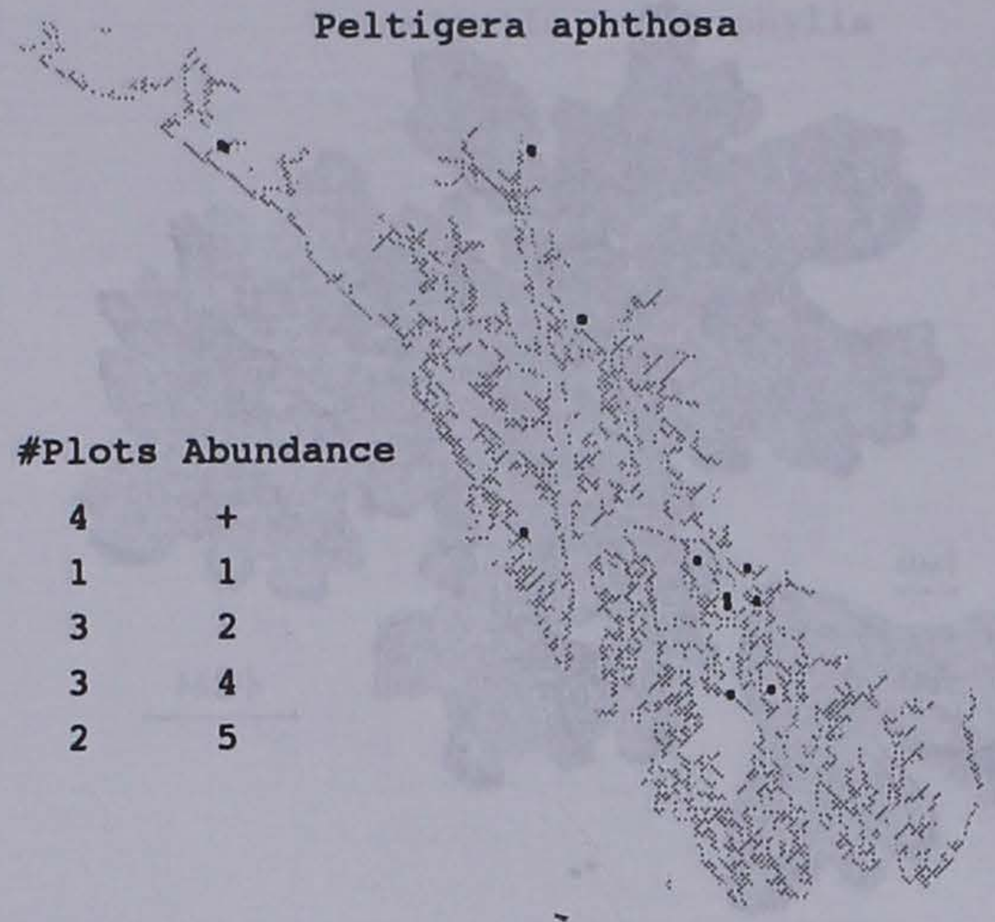
Parmeliopsis ambigua (Wulfen in Jacq.) Nyl.
Sensitivity: 1.2-8.9.
SO_2 Sensitivity: intermediate, 52-65/78.
Abundance: 7, common.
Habitat: over trees and shrubs, especially conifers, in open to shady forests; widespread.
Abundance in North America/Range: abundant; circumpolar low arctic and boreal, Alaska to New Mexico.

Parmeliopsis hyperopta (Ach.) Arnold
Sensitivity: 8-9.4.
SO_2 Sensitivity: intermediate, 52-78/-.
Abundance: 40, abundant.
Habitat: over trees and shrubs, especially conifers, in open to shady forests; widespread.
Abundance in North America/Range: abundant; circumpolar low arctic and boreal, Alaska to Colorado.

Parmotrema arnoldii (Du Rietz) Hale
Abundance: 3, infrequent.
Habitat: over branches of conifers along beaches.
Abundance in North America/Range: western North America, Alaska to Mexico and eastern North America; western Eurasia.

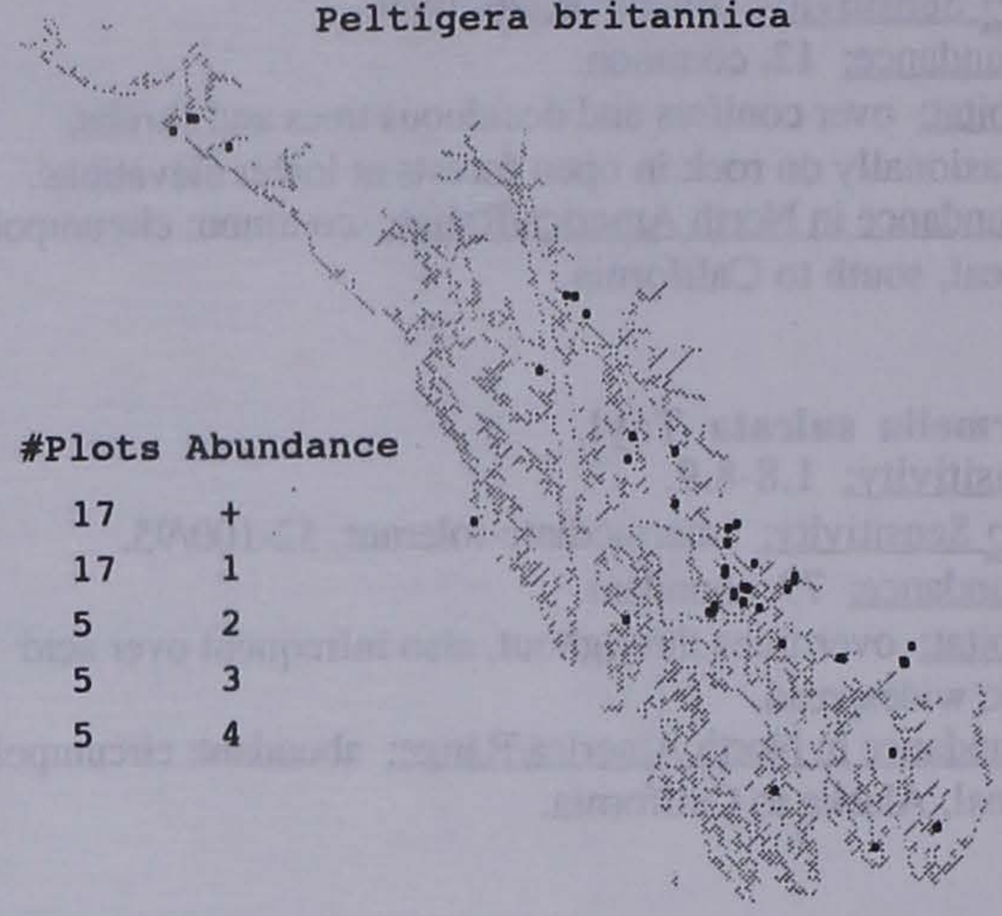
Parmotrema chinense (Osbeck) Hale & Ahti
Abundance: 1, rare.
Habitat: over branches of conifers along beaches.
Abundance in North America/Range: incompletely circumpolar, southeast Alaska to Mexico.

Peltigera aphthosa



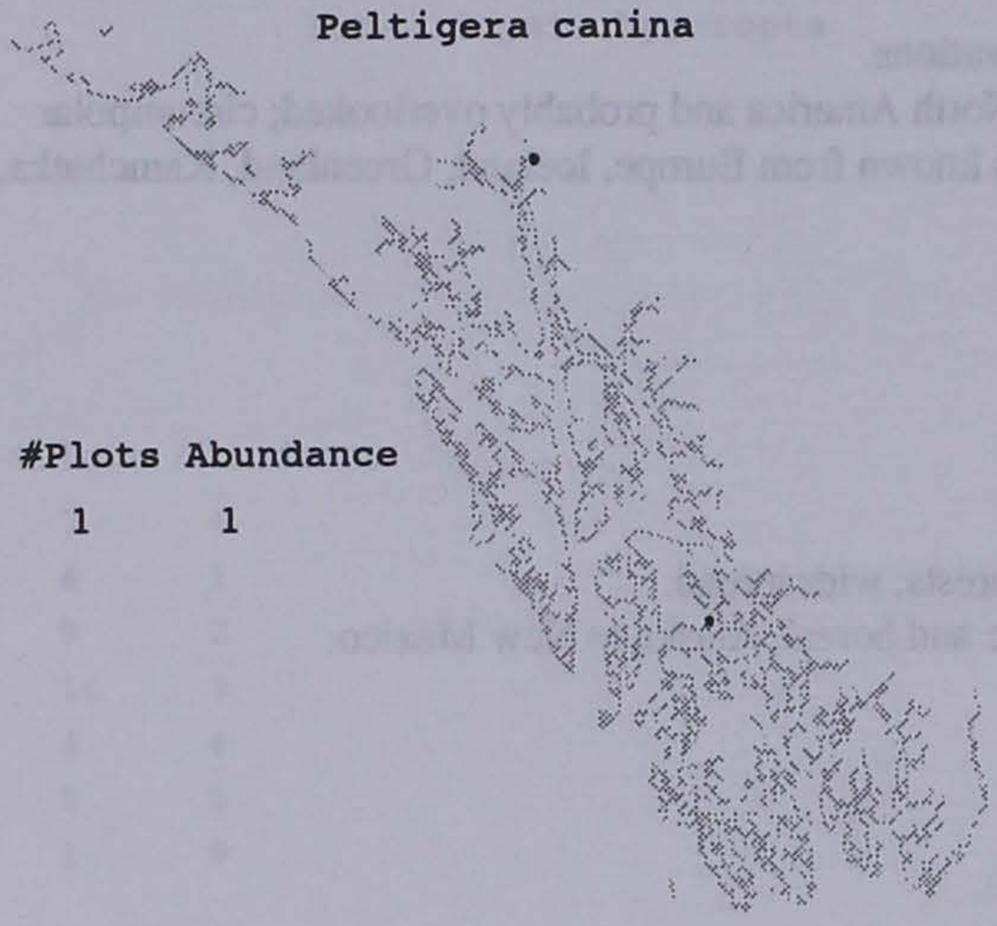
#Plots	Abundance
4	+
1	1
3	2
3	4
2	5

Peltigera britannica



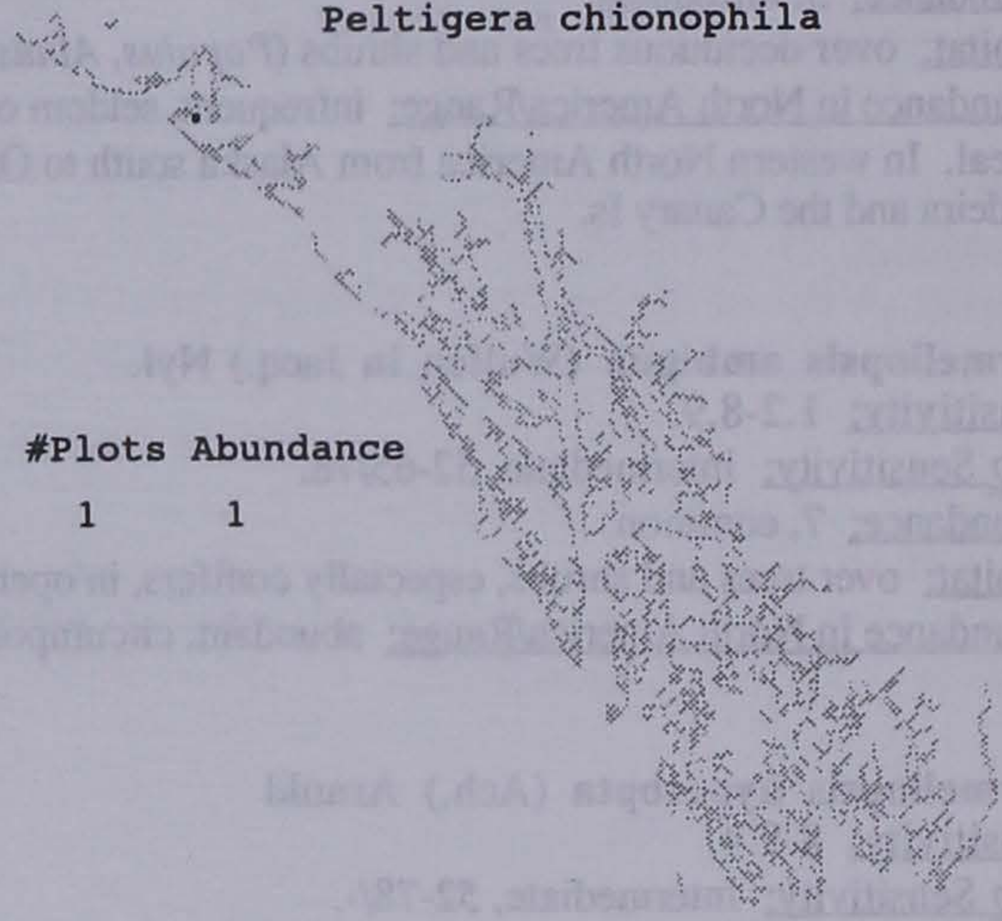
#Plots	Abundance
17	+
17	1
5	2
5	3
5	4

Peltigera canina



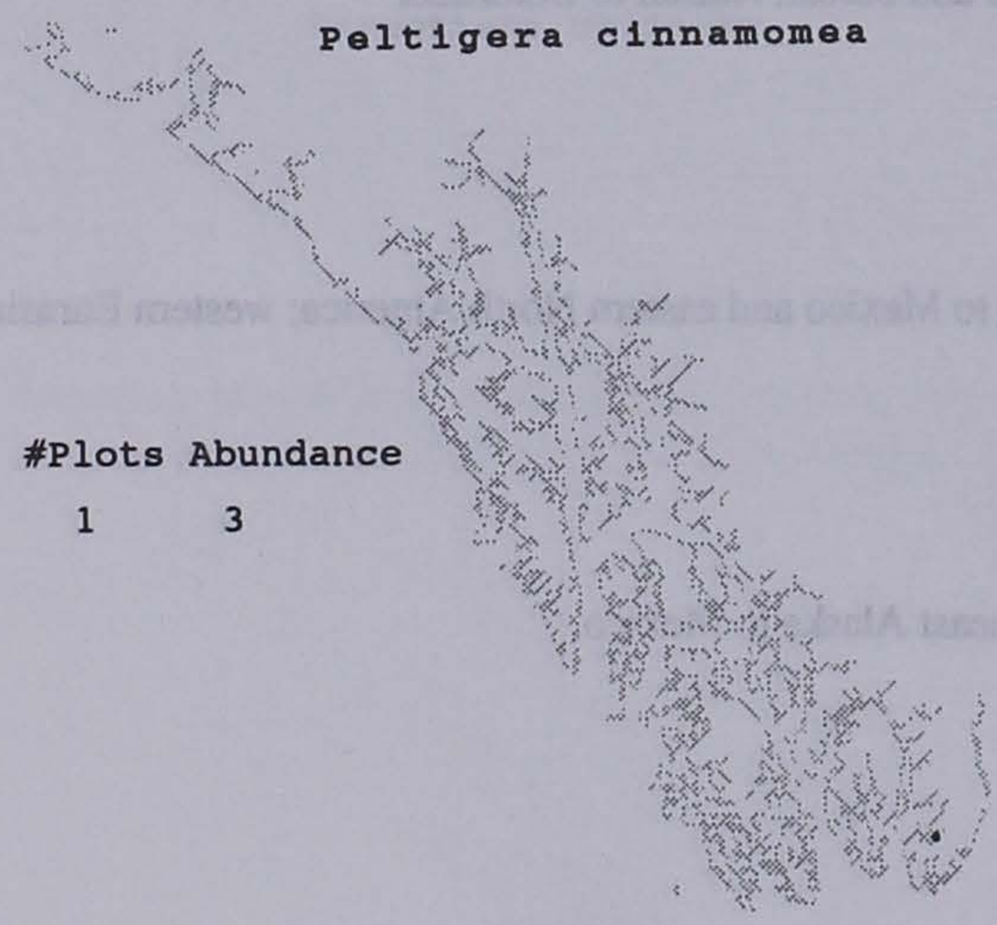
#Plots	Abundance
1	1

Peltigera chionophila



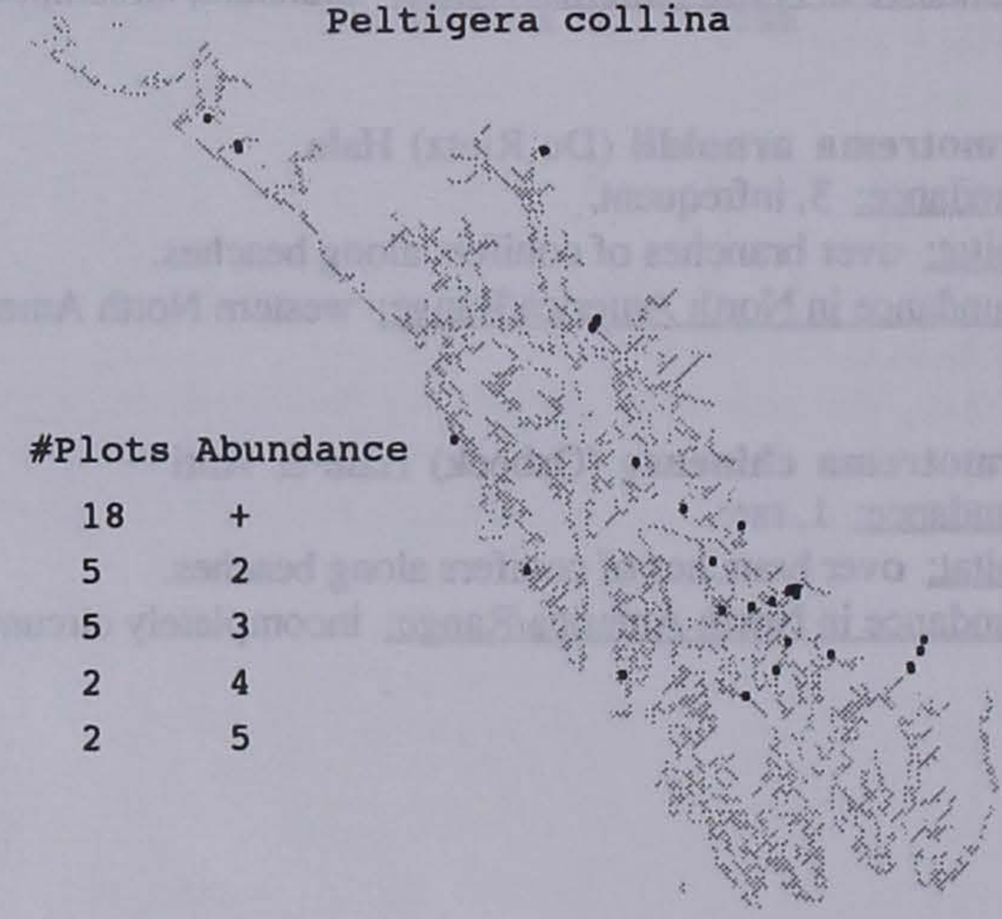
#Plots	Abundance
1	1

Peltigera cinnamomea



#Plots	Abundance
1	3

Peltigera collina



#Plots	Abundance
18	+
5	2
5	3
2	4
2	5

Peltigera aphthosa (L.) Willd.
Abundance: 12, common.
Habitat: over soil, rocks, logs and stumps, and trunk bases of conifers and deciduous shrubs, often associated with mosses; from low elevations to the alpine. May be more common on the mainland than the islands.
Abundance in North America/Range: abundant; circumpolar low arctic and boreal, south to California and New Mexico.

blue-green phycosymbiodeme
Abundance: 3, infrequent.
Habitat: on moss covered logs or bark of conifers in open to shady forests.
Notes: this is the name described by Brodo and Richardson (1978). It may synonomous with *P. avenosa* (Gyelnik) (Tønsberg & Holtan-Hartwig, 1983).

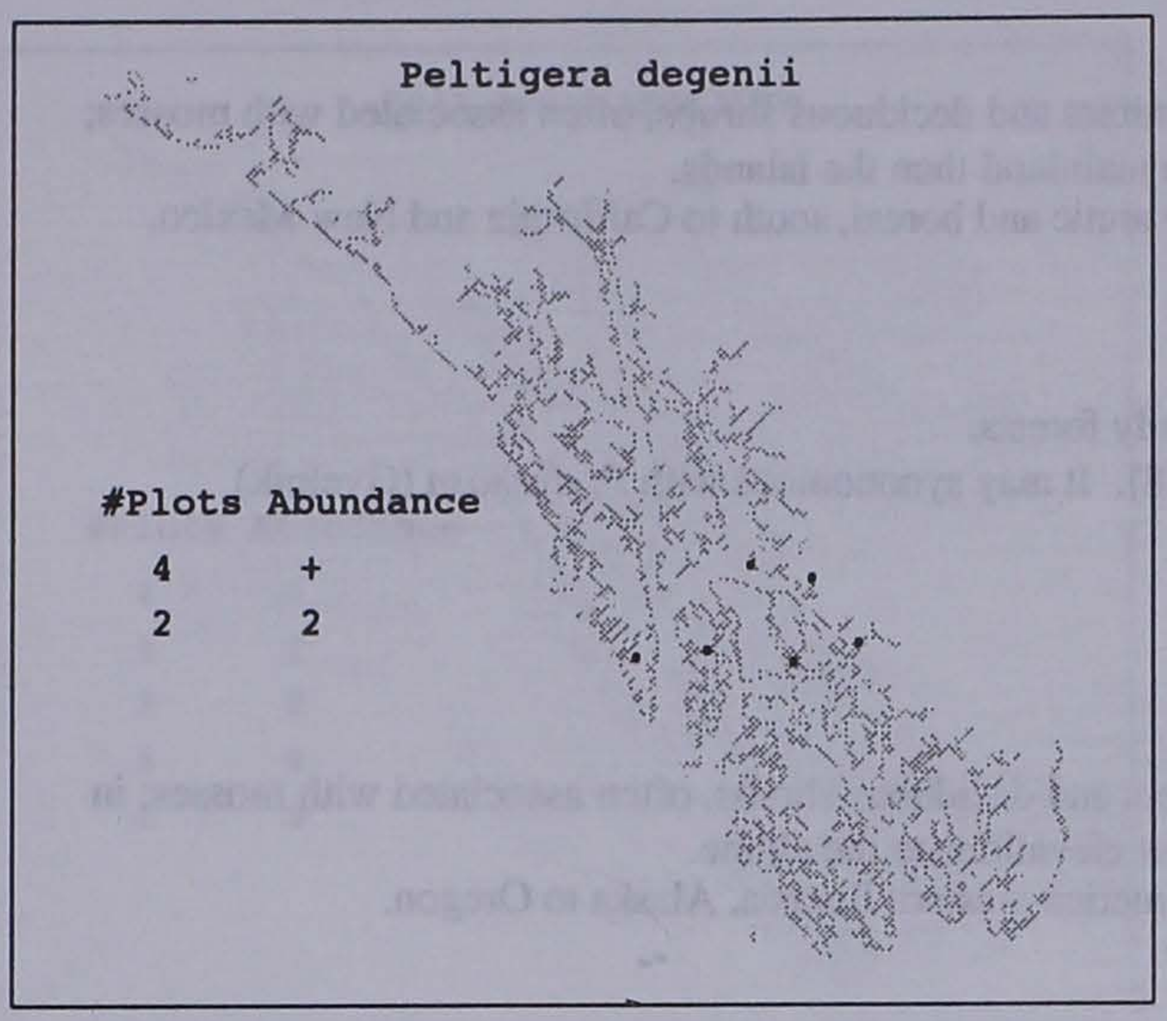
Peltigera britannica (Gyeln.) Holtan-Hartwig & Tønsb.
Abundance: 46, abundant.
Habitat: over soil, rocks, logs, stumps, and trunk bases of conifers and deciduous shrubs, often associated with mosses; in most forest types, except *Pinus contorta* open peatlands, from low elevations to the alpine.
Abundance in North America/Range: common; western North America-western Eurasia, Alaska to Oregon.

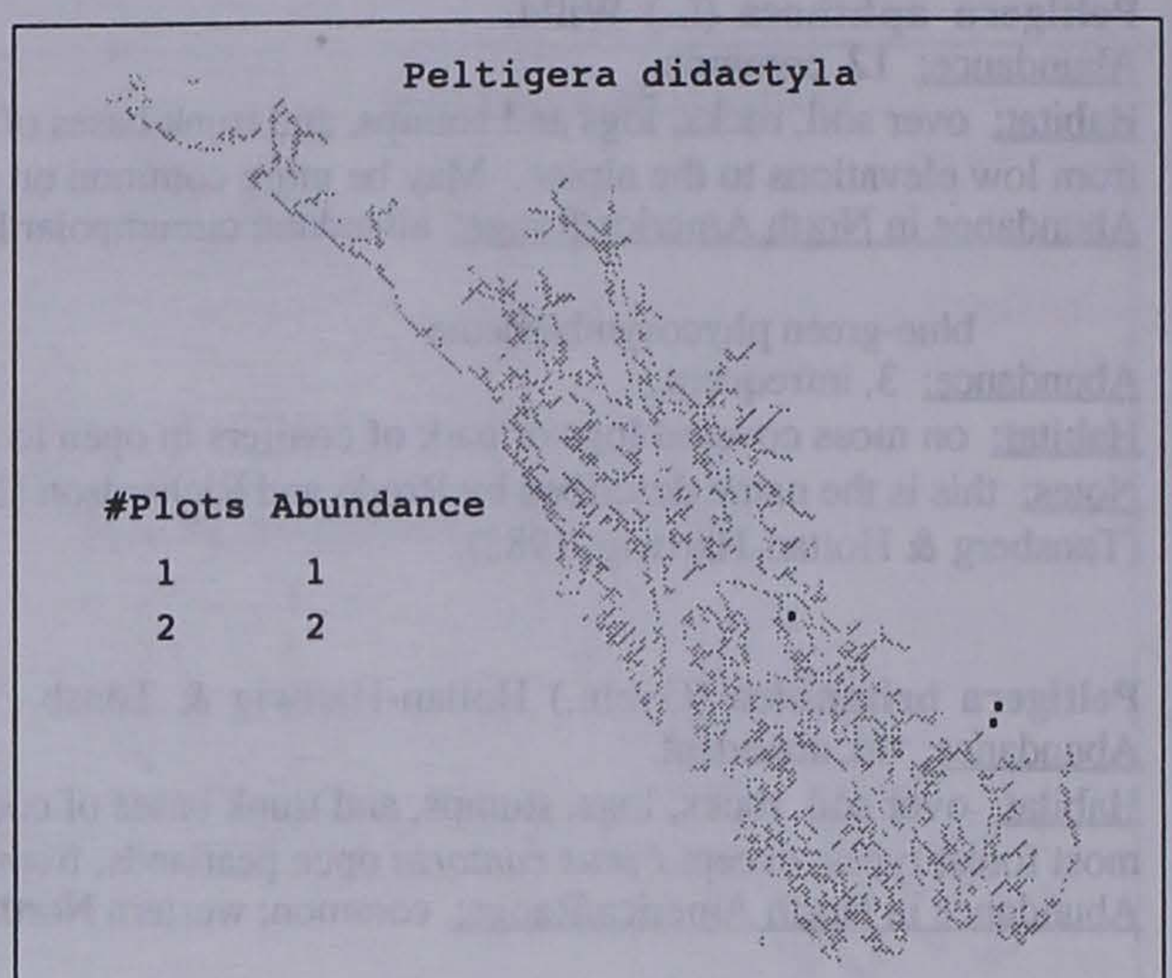
Peltigera canina (L.) Willd.
Sensitivity: 8.6-10.
Abundance: 2, rare.
Habitat: in British Columbia this lichen is found over soil, moss, duff or logs in open to somewhat sheltered sites througout; from coastal forests to alpine and subalpine (Goward et al., 1992). In southeastern Alaska, *P. membranacea.*, a related species, predominates.
Abundance in North America/Range: abundant; circumpolar low arctic and boreal.

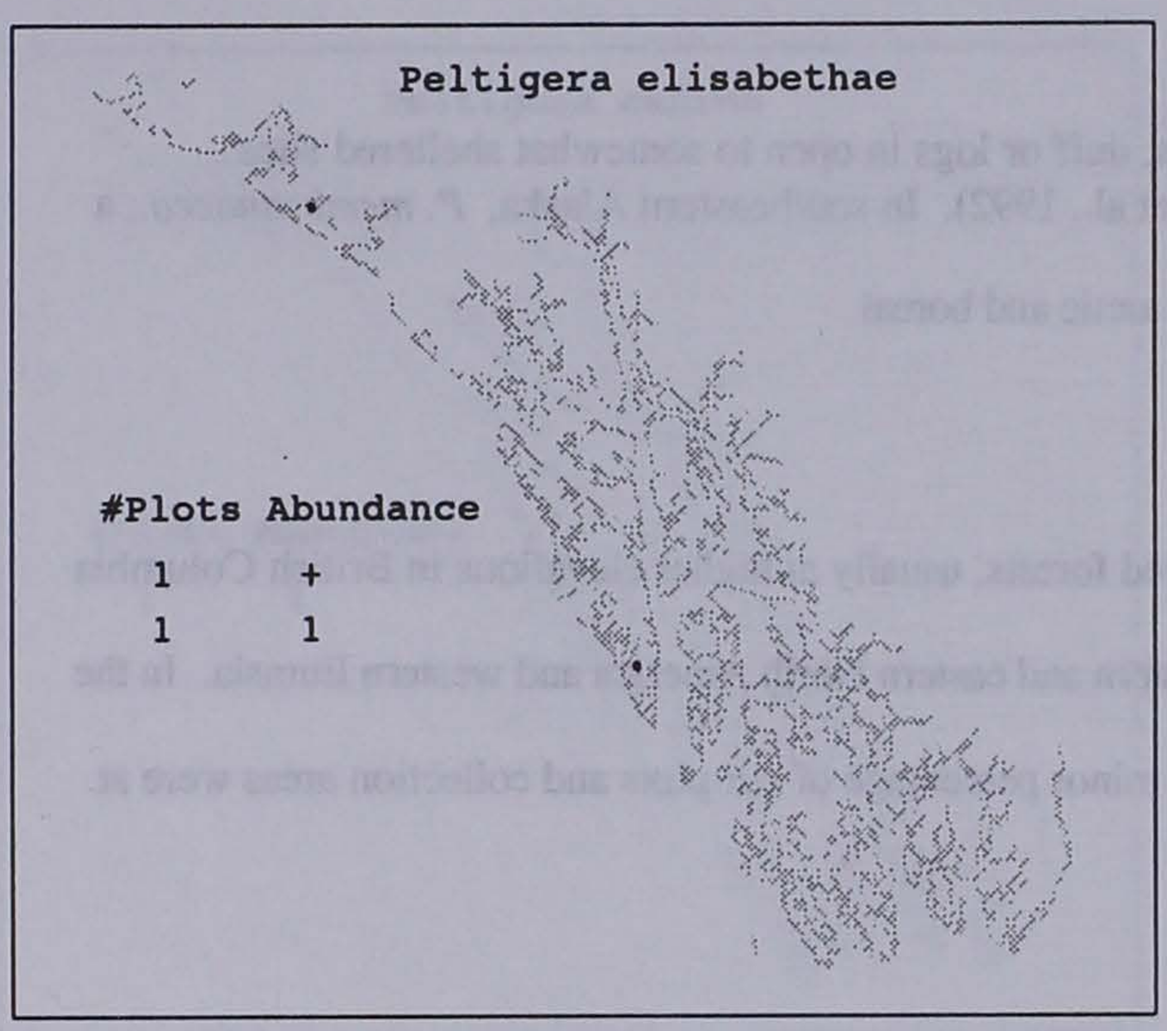
Peltigera chionophila Goward ined.
Abundance: 1, infrequent?
Habitat: frequent over moss and mossy rocks and logs in sheltered forests, usually at higher elevations in British Columbia (Goward et al., 1992)
Abundance in North America/Range: distribution apparently western and eastern North America and western Eurasia. In the west, south to Oregon .
Notes: very similar to *P. britannica* and possibly overlooked. A minor percentage of our plots and collection areas were at high elevations.

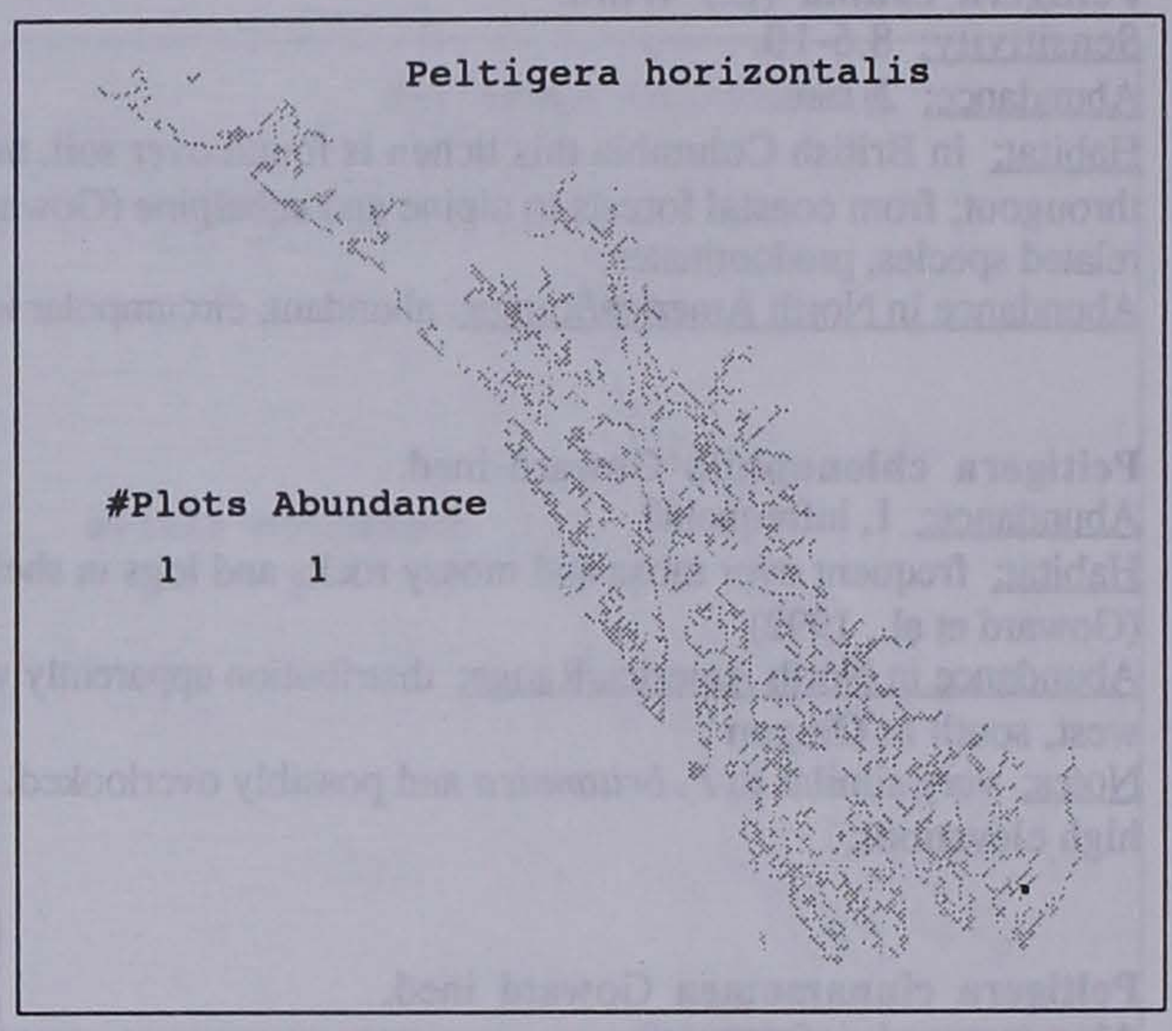
Peltigera cinnamomea Goward ined.
Abundance: 1, infrequent?
Habitat: frequent over moss and mossy rocks and logs in open to somewhat sheltered inland forests in British Columbia (Goward et al., 1992). Largely restricted to foothills and mountain habitats with long-lasting snow cover (Goffinet and Hastings, 1994).
Abundance in North America/Range: Currently known only from the Pacific northwest and Alberta.
Notes: very similar to *P. membranacea.* and possibly overlooked .

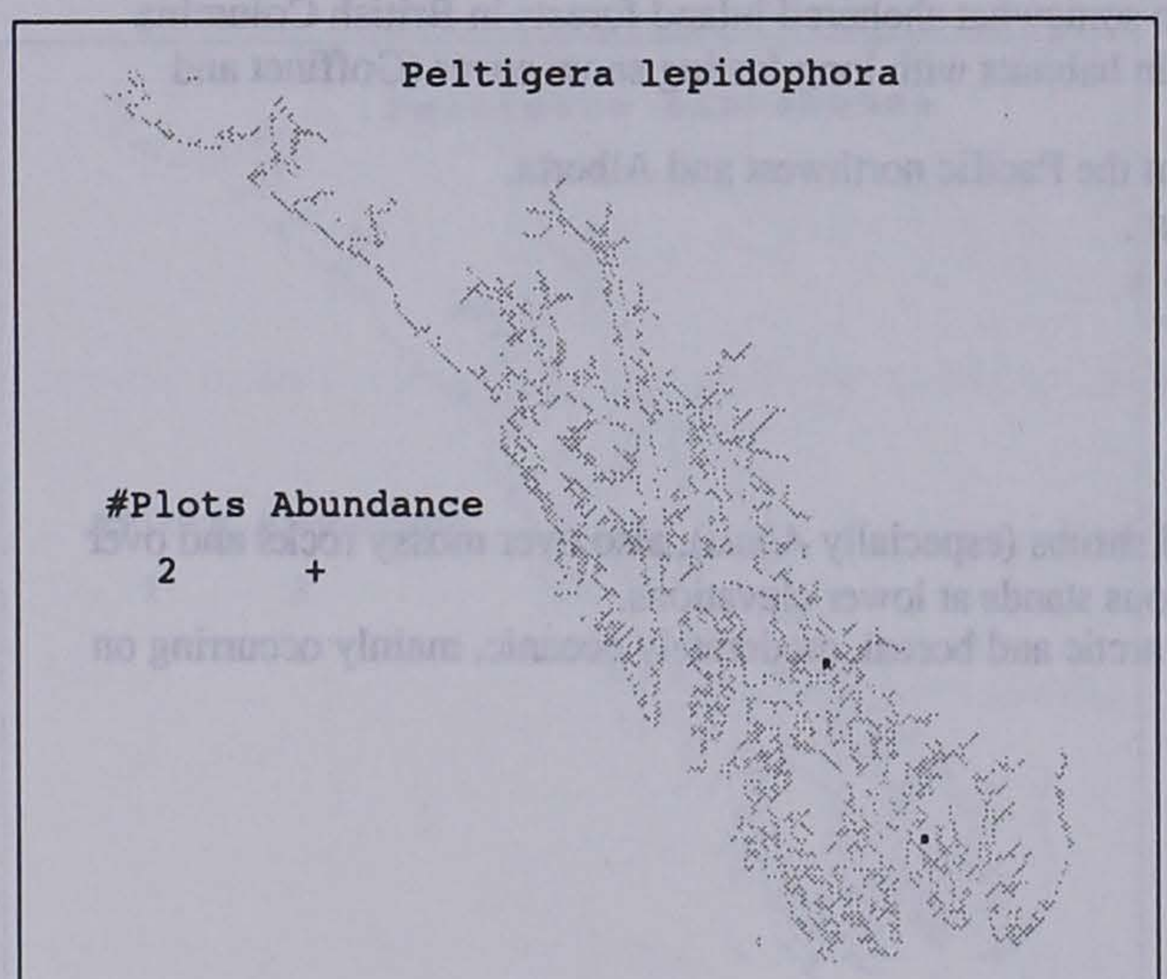
Peltigera collina (Ach.) Schrader
Sensitivity: 6-10.
Abundance: 31, abundant.
Habitat: primarily on trunks and branches of deciduous trees and shrubs (especially *Alnus*), also over mossy rocks and over soil humus in deciduous stands or mixed spruce or conifer/deciduous stands at lower elevations.
Abundance in North America/Range: common; circumpolar low arctic and boreal, moderately oceanic, mainly occurring on the northwest Pacific coast, Alaska to California.

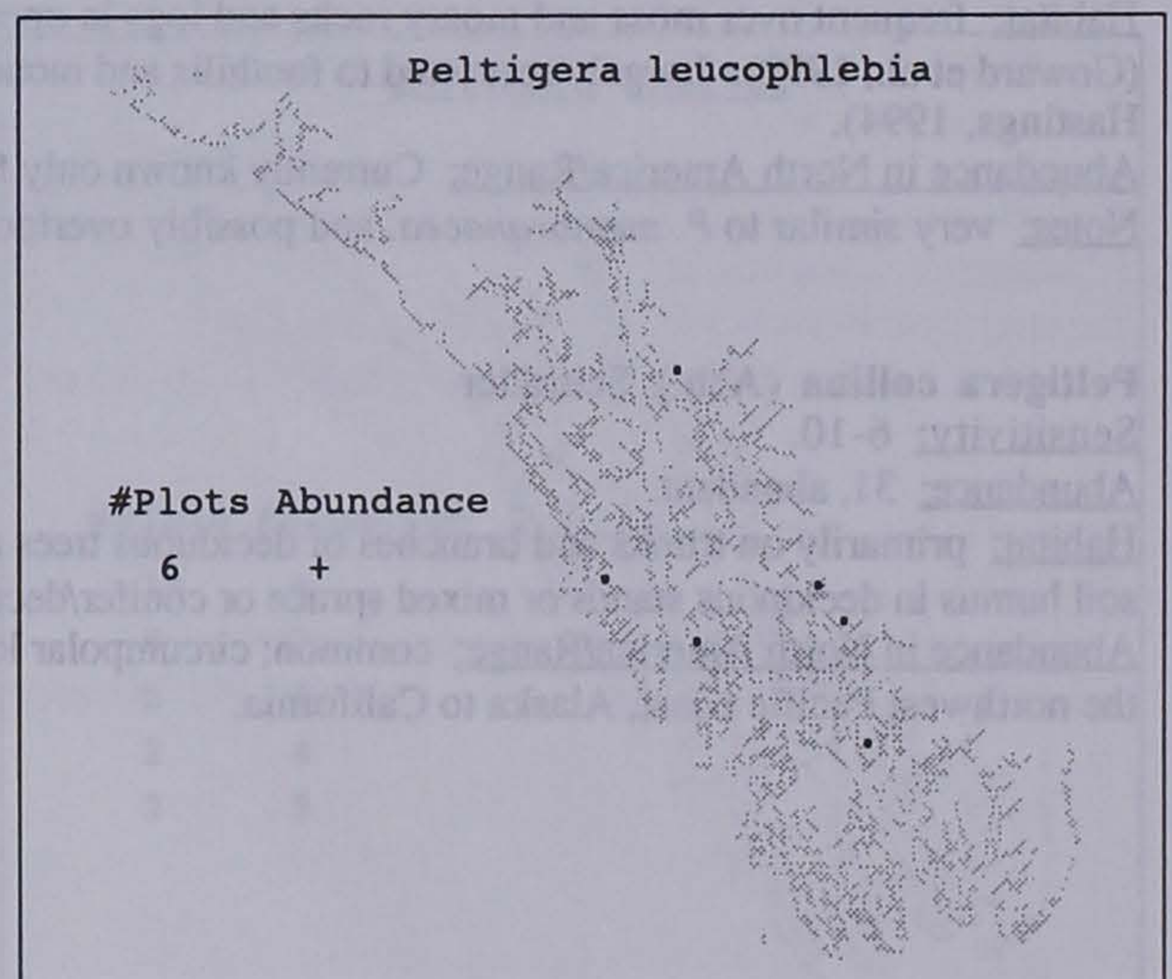

Peltigera degenii
#Plots Abundance
4 +
2 2


Peltigera didactyla
#Plots Abundance
1 1
2 2


Peltigera elisabethae
#Plots Abundance
1 +
1 1


Peltigera horizontalis
#Plots Abundance
1 1


Peltigera lepidophora
#Plots Abundance
2 +


Peltigera leucophlebia
#Plots Abundance
6 +

Peltigera degenii Gyeln.
Abundance: 6, infrequent.
Habitat: over soil humus on the forest floor, mossy rocks and mossy logs in open to somewhat sheltered forest sites at lower elevations. In mixed deciduous stands and mixed conifer stands. Not found in open peatlands or *Pinus contorta* forests.
Abundance in North America/Range: infrequent; probably incompletely circumpolar, Alaska to Oregon.

Peltigera didactyla (With.) Laundon
Abundance: 3, infrequent.
Habitat: over soil, moss, logs, or trees in open sites.
Abundance in North America/Range: common; circumpolar, Alaska to California in western North America.

Peltigera elisabethae Gyeln.
Abundance: 2, rare.
Habitat: over soil and mossy rock in open forests.
Abundance in North America/Range: probably circumpolar, Alaska to Oregon. Common in British Columbia and widespread outside North America.

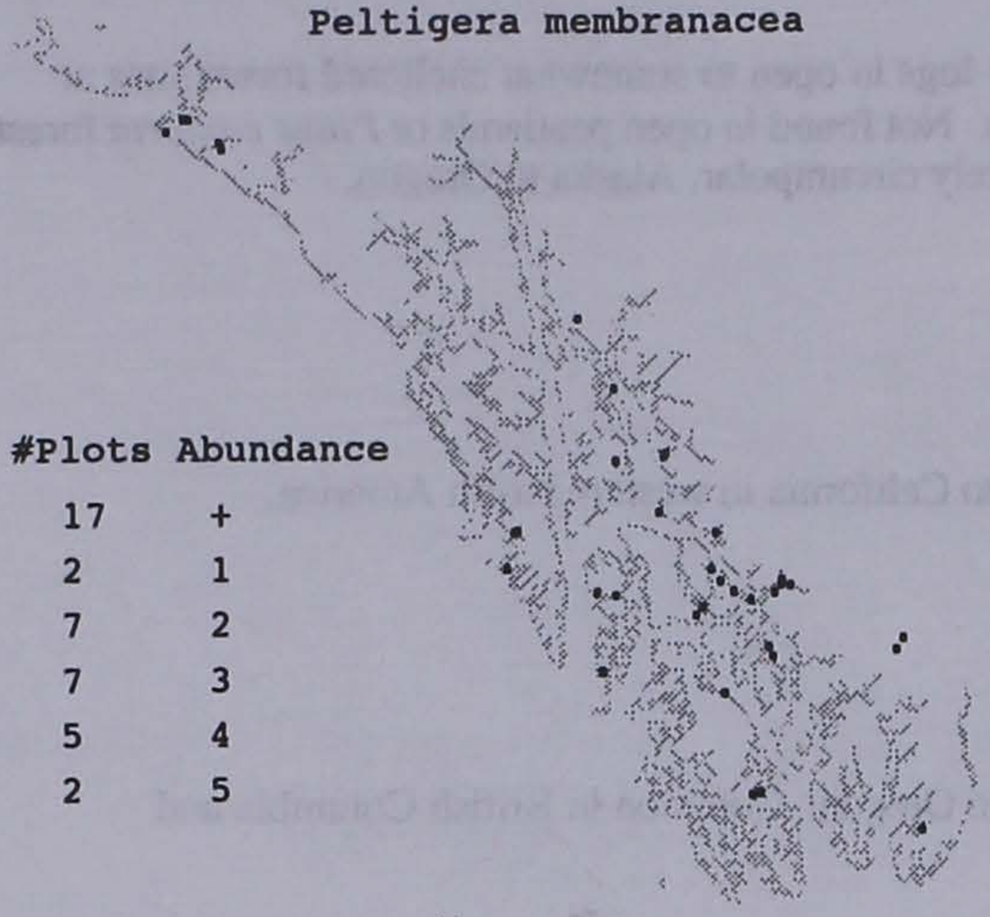
Peltigera horizontalis (Huds.) Baumg.
SO_2 Sensitivity: intermediate, -/65.
Abundance: 1, rare.
Habitat: in British Columbia this lichen occurs over moss and mossy rocks and logs in open or somewhat sheltered coastal forests at lower elevations (Goward et al., 1992).
Abundance in North America/Range: common; circumpolar boreal, Alaska to Oregon.

Peltigera lepidophora (Nyl. ex Vainio) Bitter
Abundance: 2, infrequent.
Habitat: of our two collections, one was made from rock with moss in a mixed conifer, the other from alder in a second growth alder patch, both lowlands. In British Columbia this species occurs over soil and moss in open sites and is more common to interior arid lands and wet interior forests (Goward et al., 1992).
Abundance in North America/Range: common; circumpolar low arctic and boreal, south to Colorado.

Peltigera leucophlebia (Nyl.) Gyeln.
Abundance: 6, common.
Habitat: usually found growing with moss over soil or rock; in cold areas such as the alpine, or near the termini of glaciers.
Abundance in North America/Range: abundant; circumpolar low arctic and boreal, south to California. Similar to *P. britannica* and possibly undercollected.

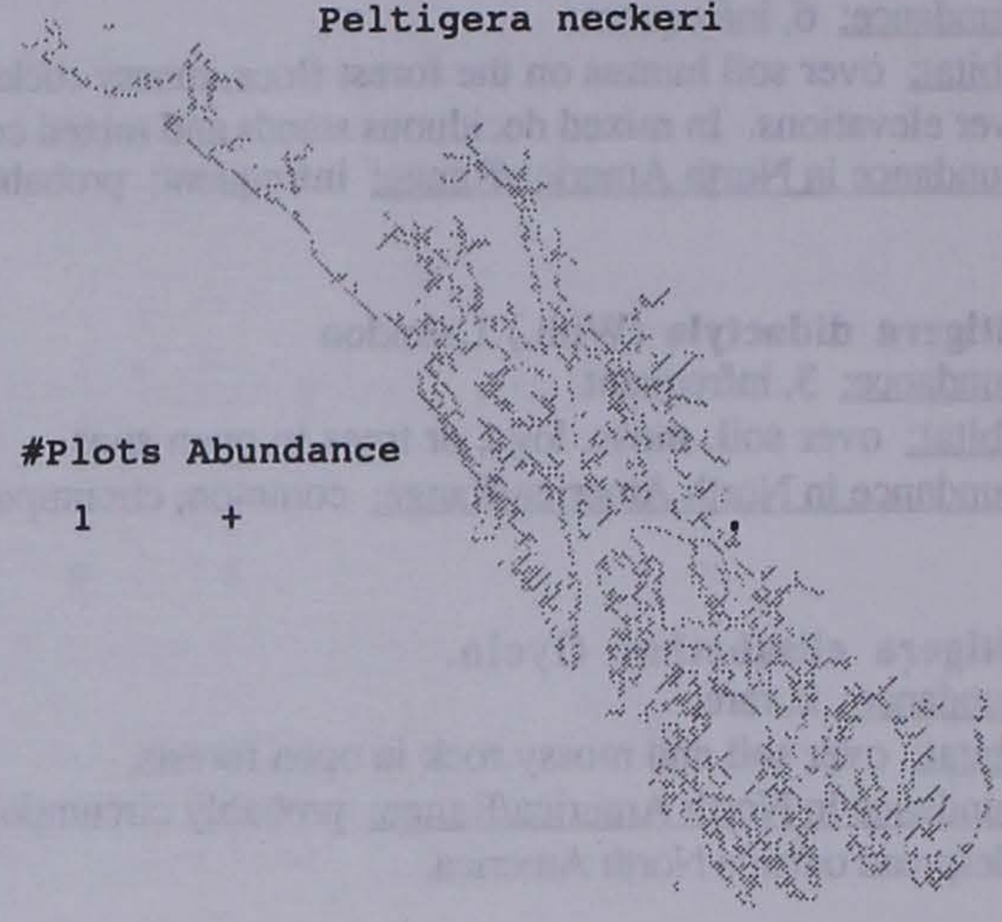
Peltigera malacea (Ach.) Funck
Abundance: 0, rare.
Habitat: in British Columbia over soil and moss in open, drier forests and alpine ridges (Goward et al., 1992).
Abundance in North America/Range: abundant; circumpolar boreal, Alaska to Colorado.
Notes: reported from Yakutat (Thomson, 1984).

Peltigera membranacea



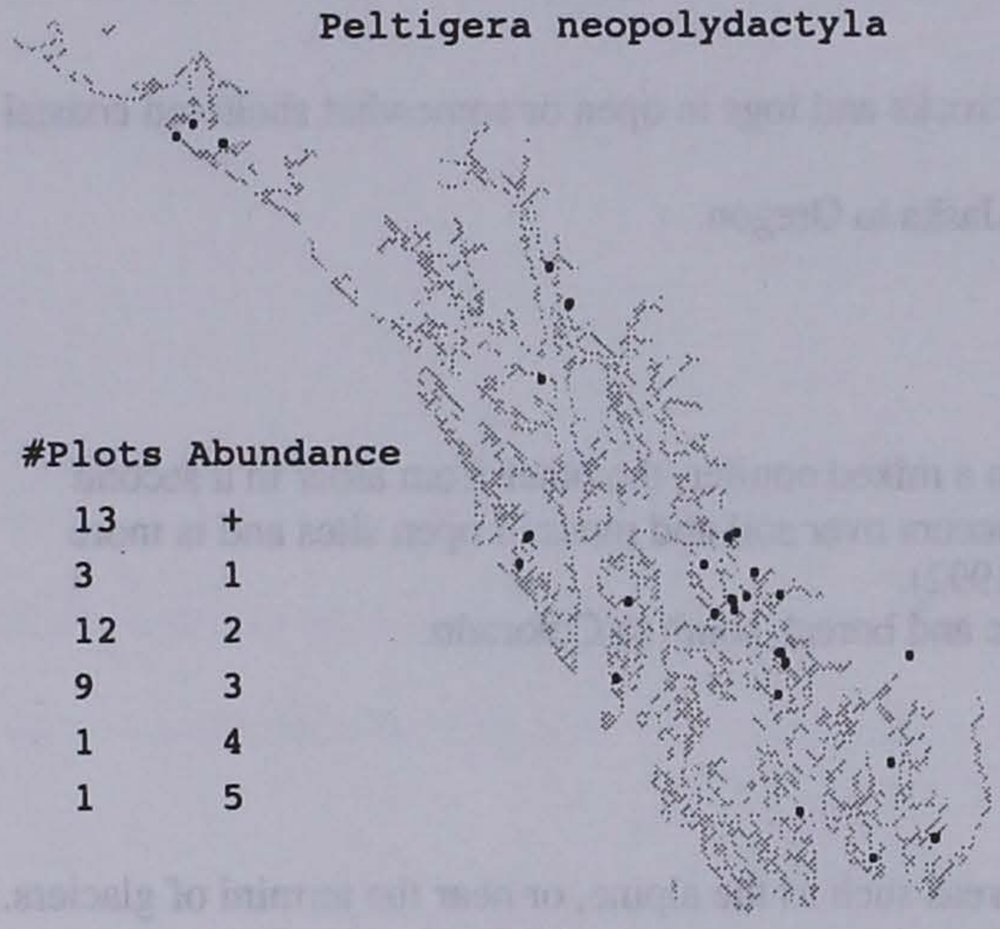
#Plots	Abundance
17	+
2	1
7	2
7	3
5	4
2	5

Peltigera neckeri



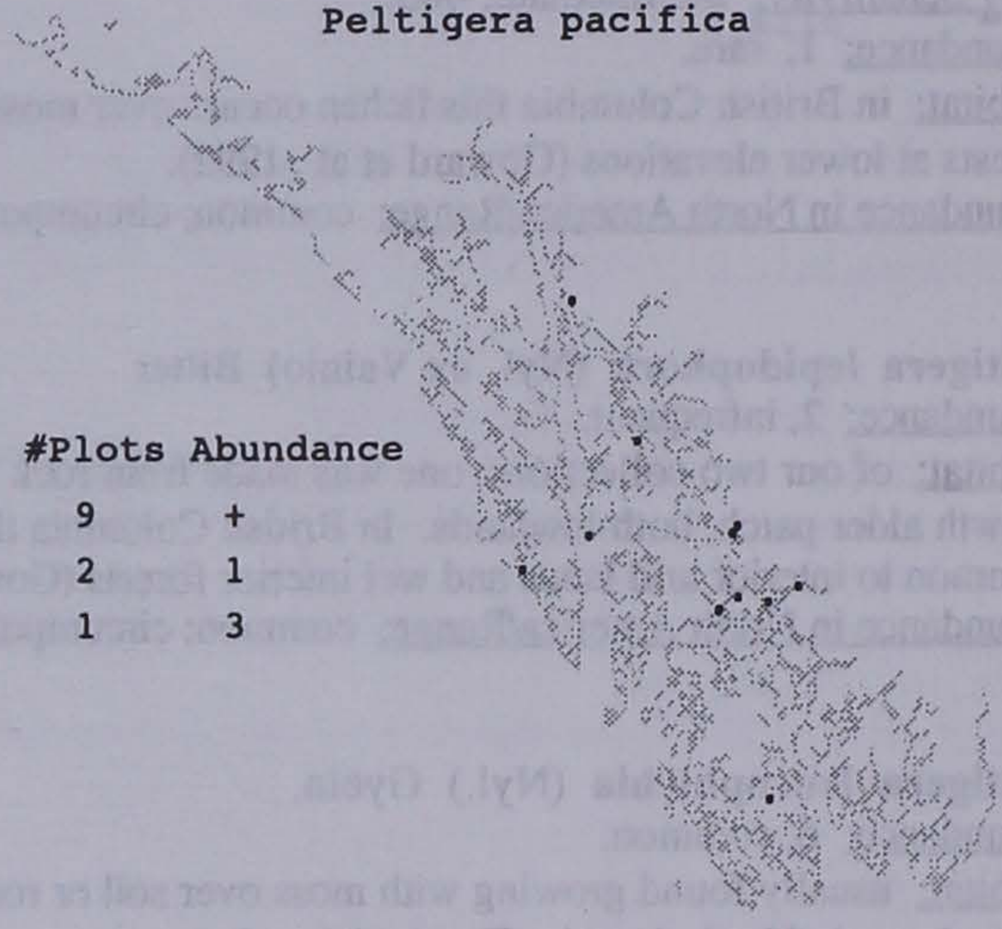
#Plots	Abundance
1	+

Peltigera neopolydactyla



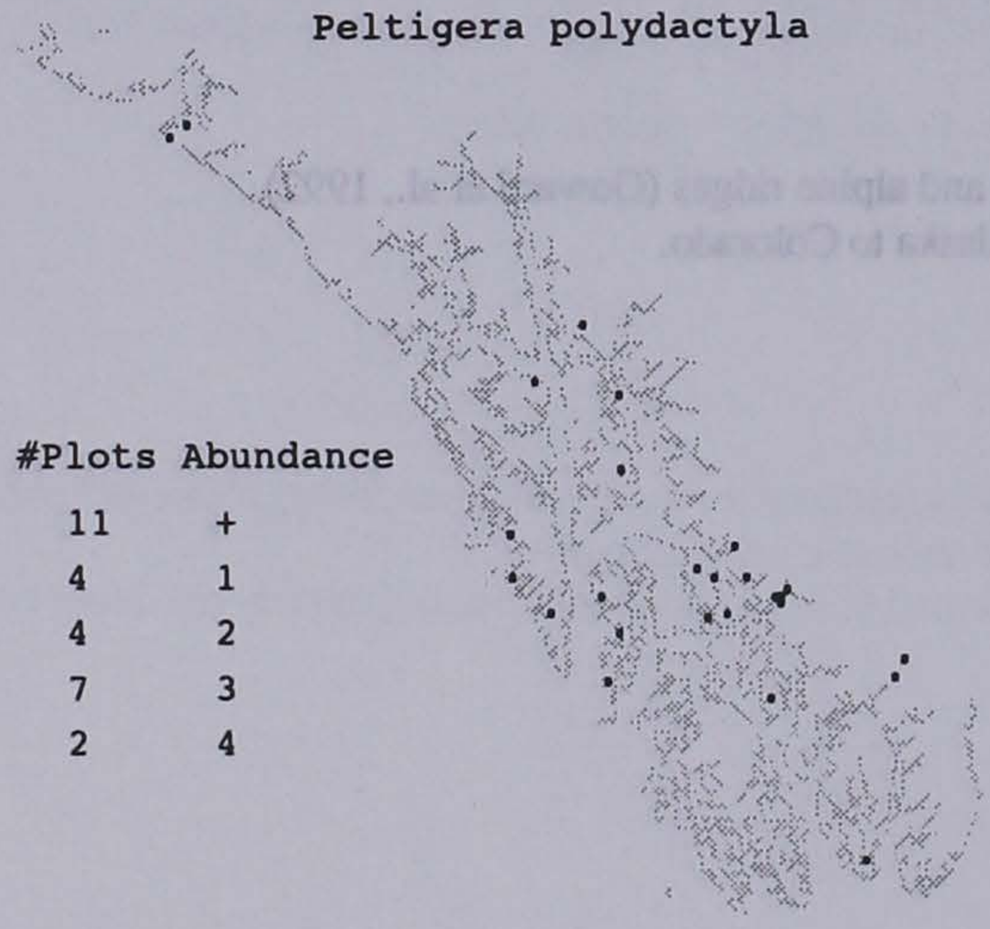
#Plots	Abundance
13	+
3	1
12	2
9	3
1	4
1	5

Peltigera pacifica



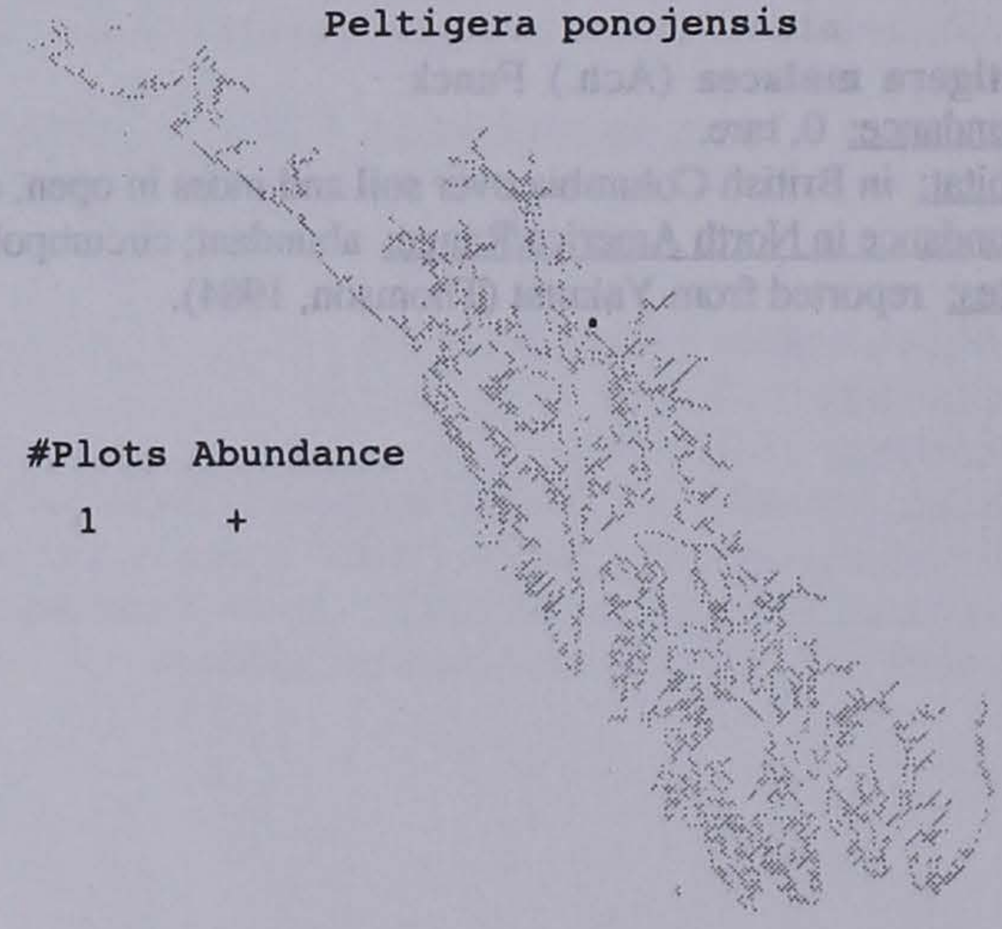
#Plots	Abundance
9	+
2	1
1	3

Peltigera polydactyla



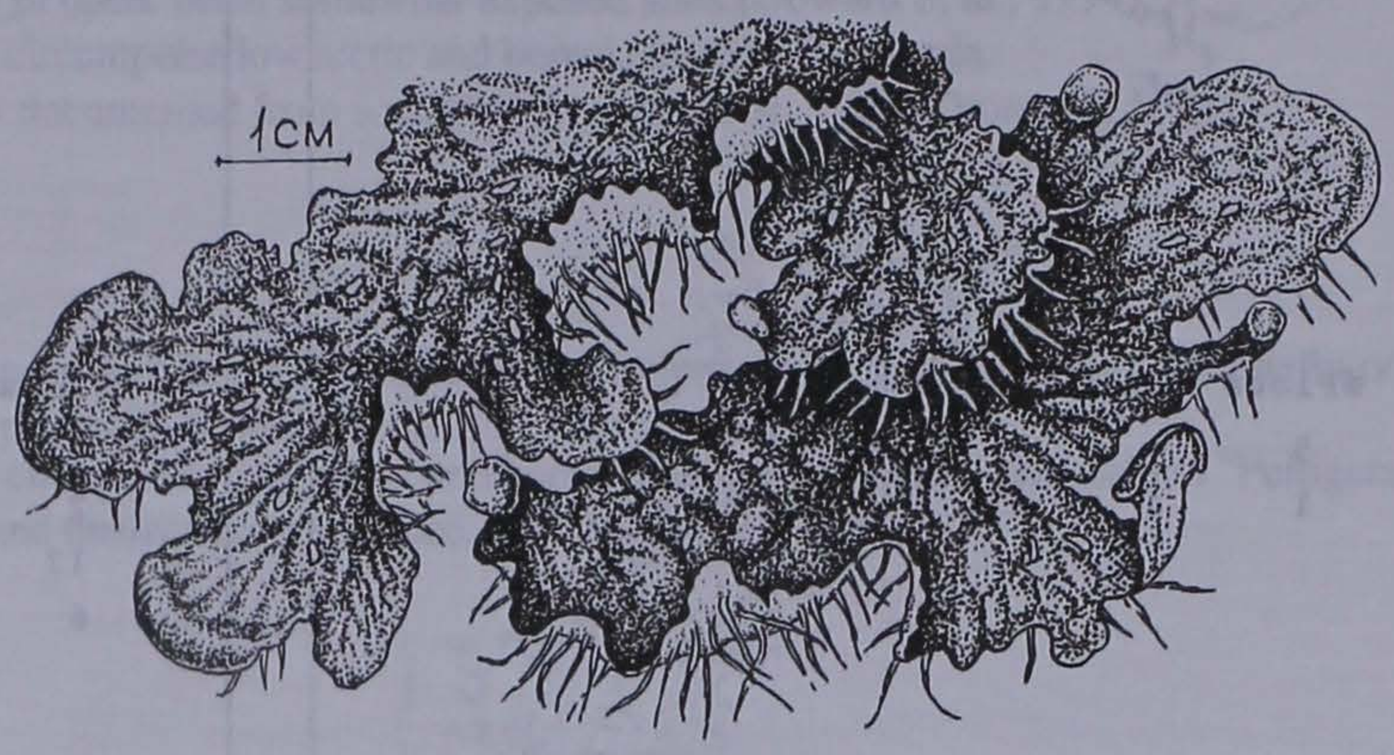
#Plots	Abundance
11	+
4	1
4	2
7	3
2	4

Peltigera ponojensis



#Plots	Abundance
1	+

Peltigera membranacea (Ach.) Nyl.
Abundance: 36, abundant.
Habitat: usually growing with mosses over soil (on the forest floor or open peatlands), rock, stumps and logs; most common in spruce, hemlock and cottonwood forests at low elevations.
Abundance in North America/Range: common , often oceanic, species ; on the west and east coasts of North America, Alaska to California.



Peltigera membranacea

Peltigera neckeri Hepp ex Müll. Arg.
Abundance: 2, infrequent.
Habitat: with mosses on sandy soils. Both collections from low elevations on the mainland. In British Columbia this lichen occurs over soil, mossy rocks and decaying logs in wet interior forests.
Abundance in North America/Range: probably circumpolar, Alaska to Oregon.

Peltigera neopolydactyla (Gyeln.) Gyeln.
Abundance: 37, abundant.
Habitat: over logs and stumps (usually associated with mosses), mossy rock, on humus on the forest floor, occasionally on bases of trunks or even branches of conifers; primarily hemlock forests, to the subalpine and alpine.
Abundance in North America/Range: probably incompletely circumpolar, Alaska to California.

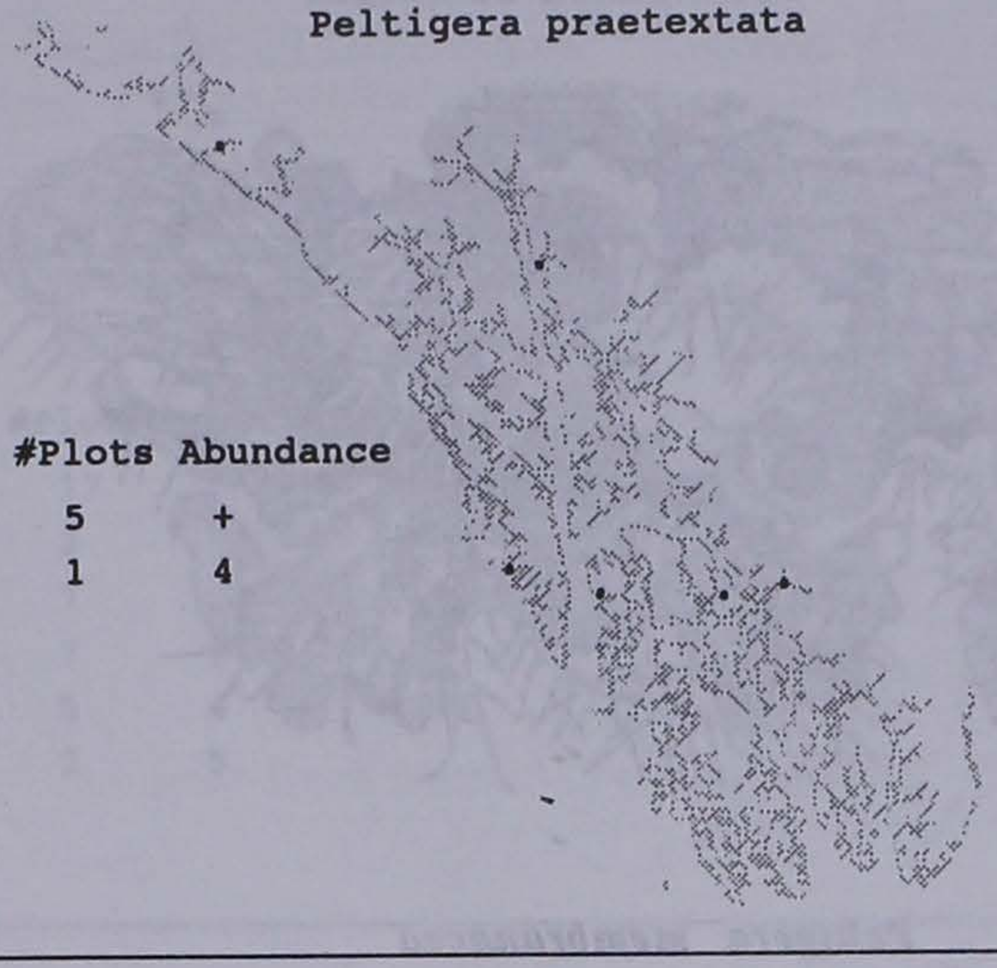
Peltigera pacifica Vitik.
Abundance: 8, infrequent.
Habitat: over logs and stumps (usually associated with mosses), mossy rock, on humus on the forest floor, occasionally on bases of trunks or even branches of conifers. In various forest types at lower elevations.
Abundance in North America/Range: endemic to the Pacific Northwest of North America, Alaska to Oregon.

Peltigera polydactyla (Neck.) Hoffm.
Abundance: 24, common.
Habitat: over logs and stumps (usually associated with mosses), mossy rocks or with humus in rock crevices, on humus on the forest floor, occasionally on bases of trunks or even on branches of conifers and deciduous shrubs. Primarily found in spruce, hemlock and mixed deciduous forests, up to the subalpine and alpine. Widespread but most common on the mainland.
Abundance in North America/Range: abundant; circumpolar low arctic and boreal, south to Oregon. Most of our "polydactyla type" *Peltigera* were *P. neopolydactyla*. The taxonomic apellation *P. polydactyla* was sometimes used in the broad sense to classify specimens with characteristics intermediate to other species.

Peltigera ponojensis Gyeln.
Abundance: 1, infrequent.
Habitat: single collection with mosses on glacial outwash near the Mendenhall glacier terminus. Also occurring in the alpine and subalpine in British Columbia.
Abundance in North America/Range: circumpolar, south to California.

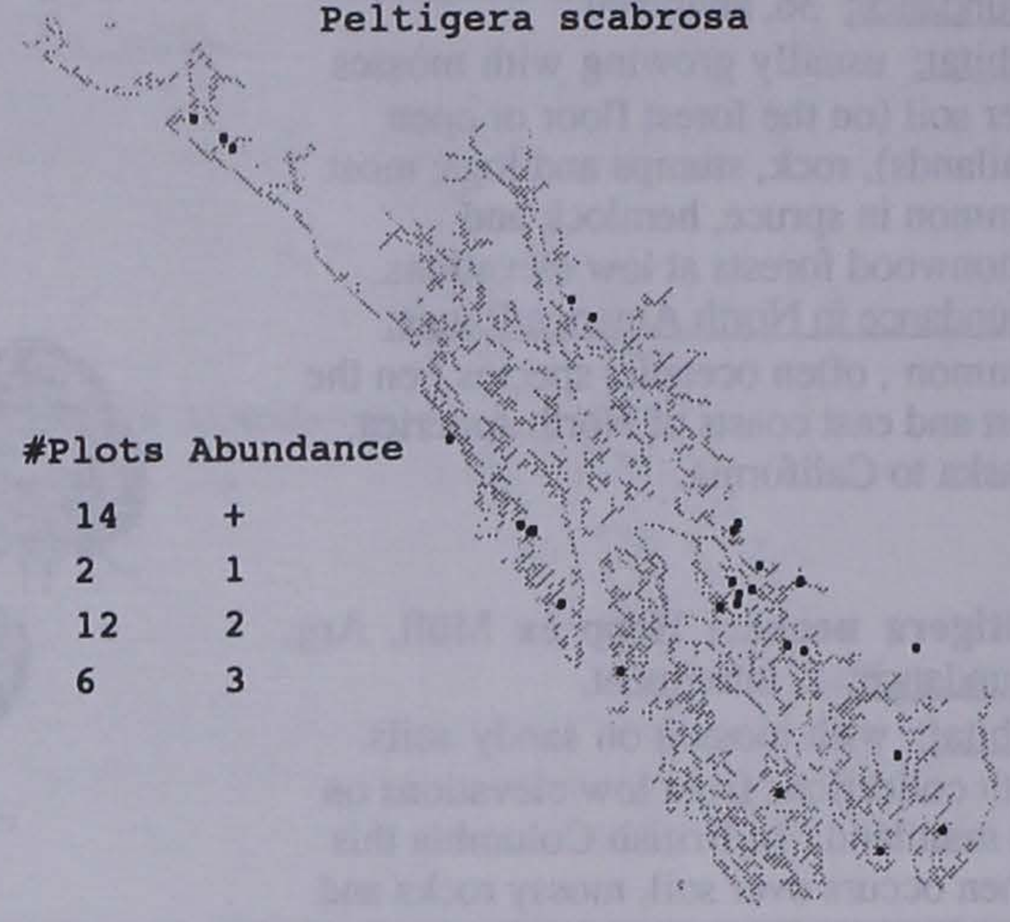
Peltigera praetextata (Flörke ex Sommerf.) Zopf
Abundance: 5, infrequent.
Habitat: over soil (from humus to sand) or logs, with or without moss, in open forests and near marine beaches and mainland rivers. Low elevations. More common further inland in British Columbia.
Abundance in North America/Range: circumpolar, southeast Alaska to California.

Peltigera praetextata



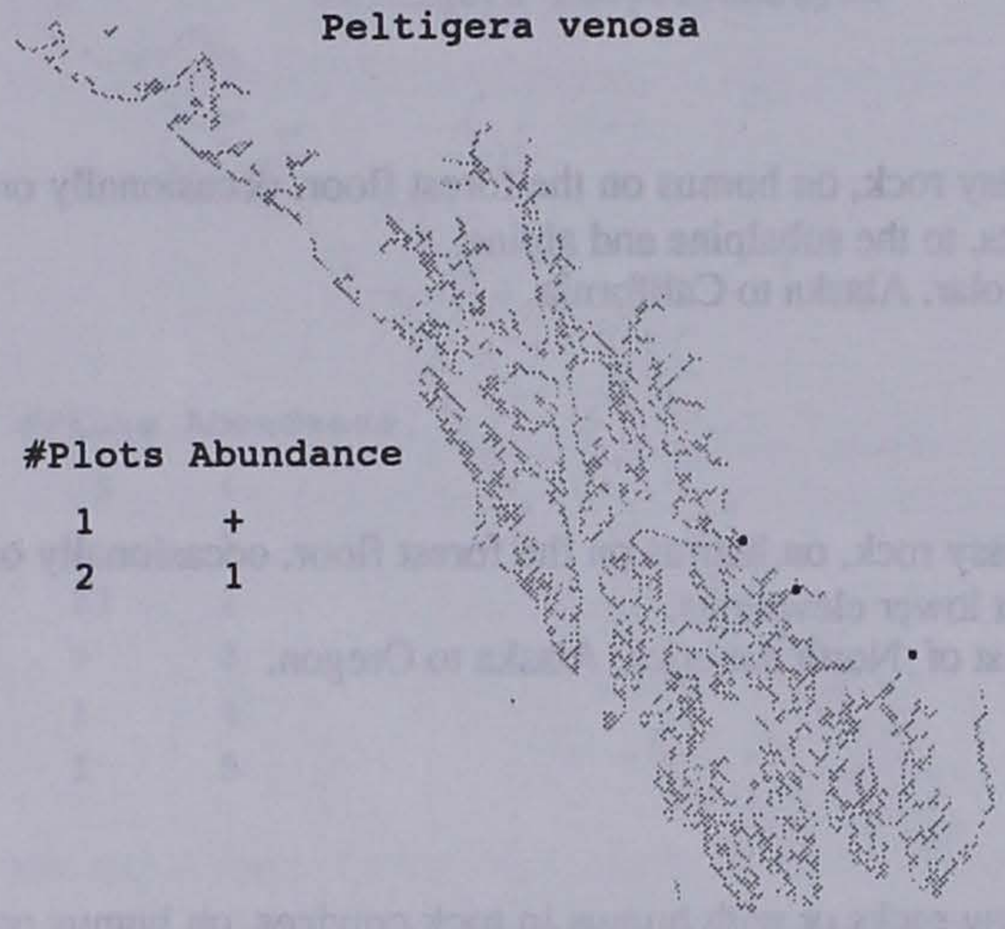
#Plots	Abundance
5	+
1	4

Peltigera scabrosa



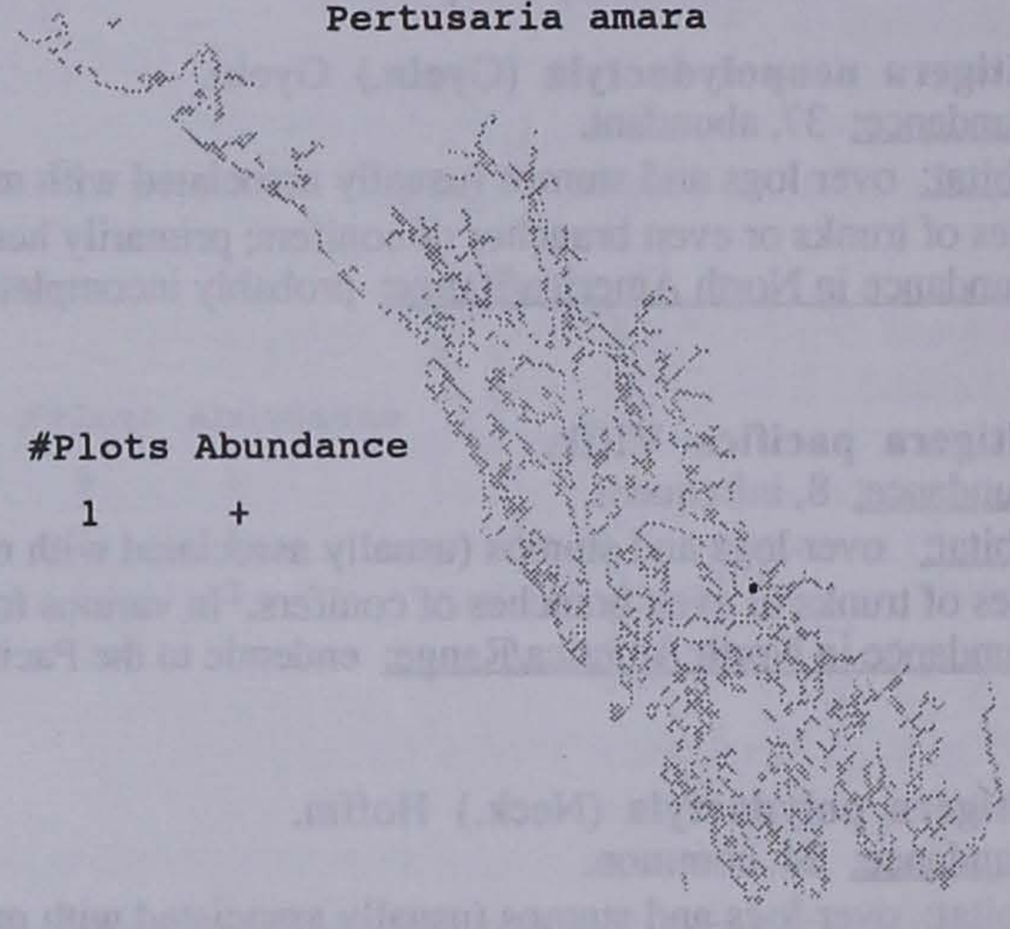
#Plots	Abundance
14	+
2	1
12	2
6	3

Peltigera venosa



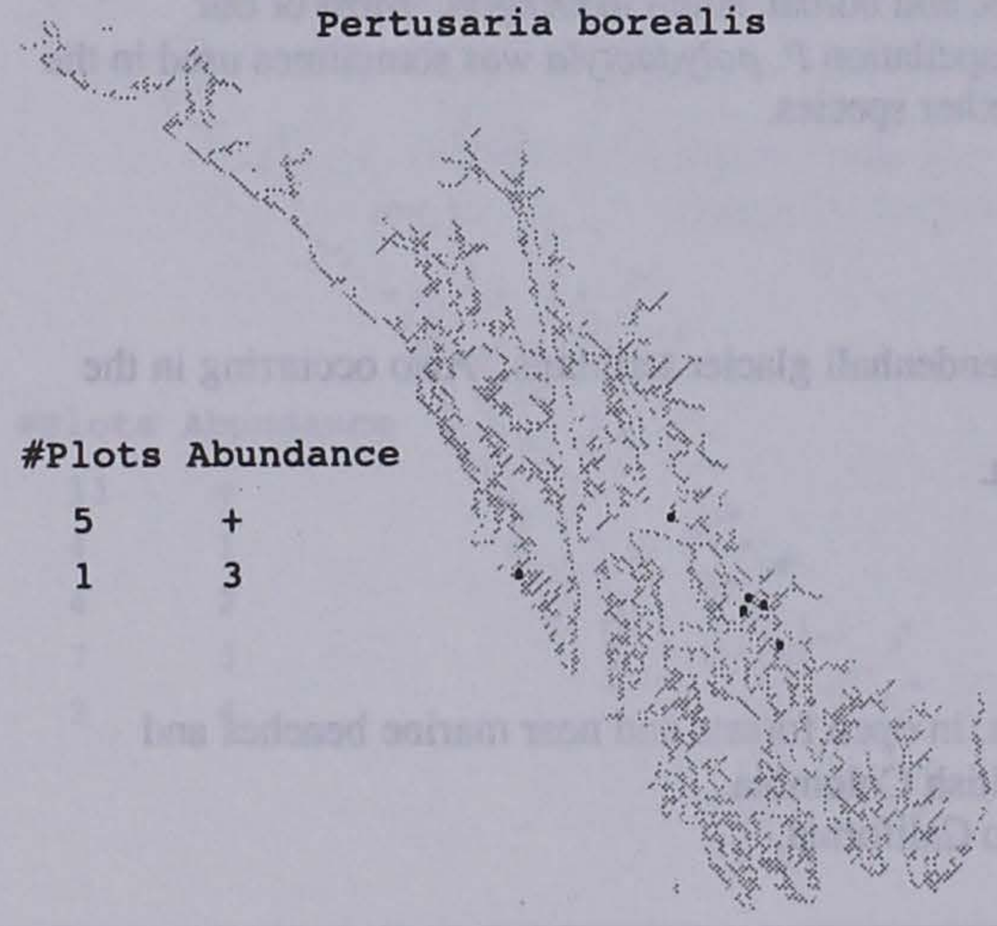
#Plots	Abundance
1	+
2	1

Pertusaria amara



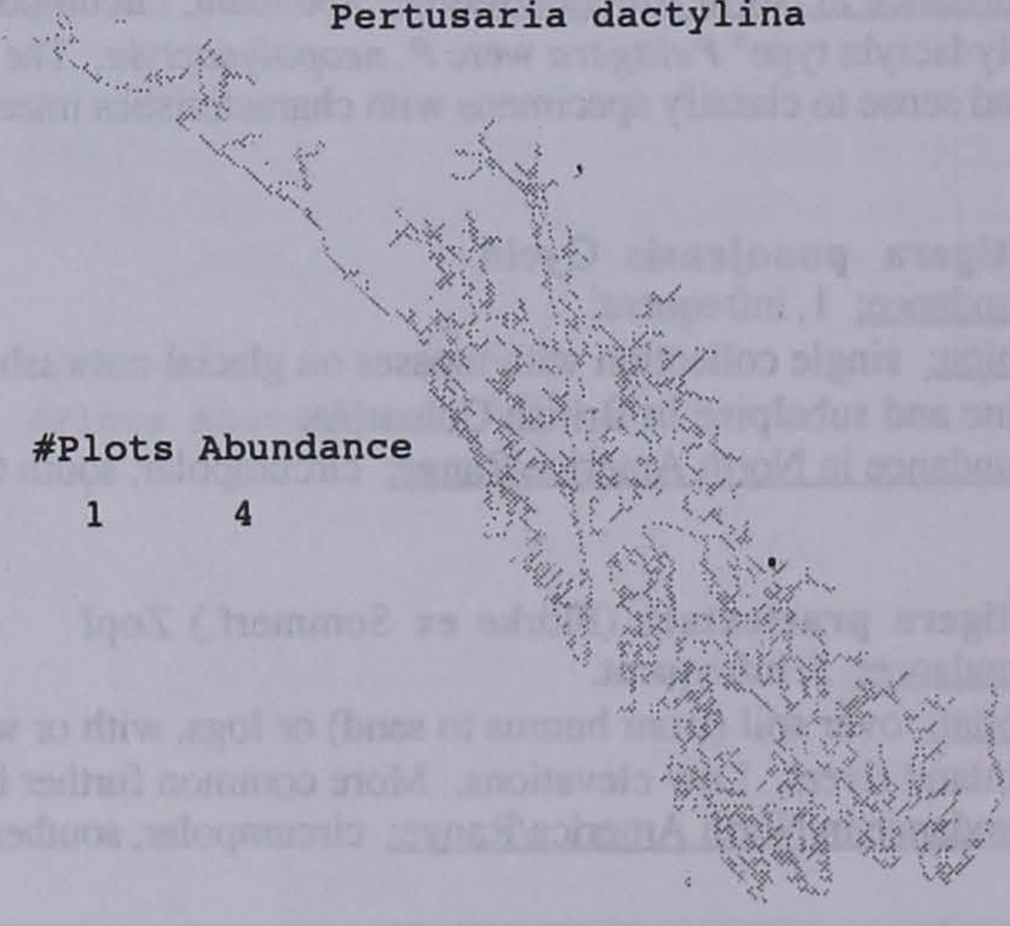
#Plots	Abundance
1	+

Pertusaria borealis



#Plots	Abundance
5	+
1	3

Pertusaria dactylina



#Plots	Abundance
1	4

Peltigera rufescens (Weis.) Humb.
Abundance: 0, infrequent.
Habitat: in British Columbia over soil or moss in open, often somewhat exposed sites (Goward et al., 1994).
Abundance in North America/Range: abundant; circumpolar low arctic and boreal, south to California.
Notes: not collected in this study but previously documented from southeast Alaska (Krog, 1968; Thomson, 1984).

Peltigera scabrosa Th. Fr.
Abundance: 33, abundant.
Habitat: over logs and stumps (usually associated with mosses), mossy rock, on humus on the forest floor, occasionally on bases of trunks or even on branches of conifers; primarily hemlock forests, to the subalpine and alpine.
Abundance in North America/Range: abundant; circumpolar low arctic and boreal, south to Montana. Nicknamed "Peltigera Tongass" in this study because of its abundance and distinctive appearance.

Peltigera venosa (L.) Hoffm.
Abundance: 2, infrequent.
Habitat: over base-rich soil, especially cut banks, in open or somewhat sheltered sites. Both collections were from mainland river valleys.
Abundance in North America/Range: common; circumpolar low arctic and boreal, south to California.

Pertusaria amara (Ach.) Nyl.
Sensitivity: 4-8.9.
Abundance: 1, ?
Habitat: single collection from bark of *Chamaecyparis nootkatensis* in a *Pinus contorta* muskeg. This lichen is corticolous on hardwoods and conifers; infrequently saxicolous.
Abundance in North America/Range: common; circumboreal. Alaska to California and south to Florida in the east.
Notes: northern range extension from the Queen Charlotte Islands.

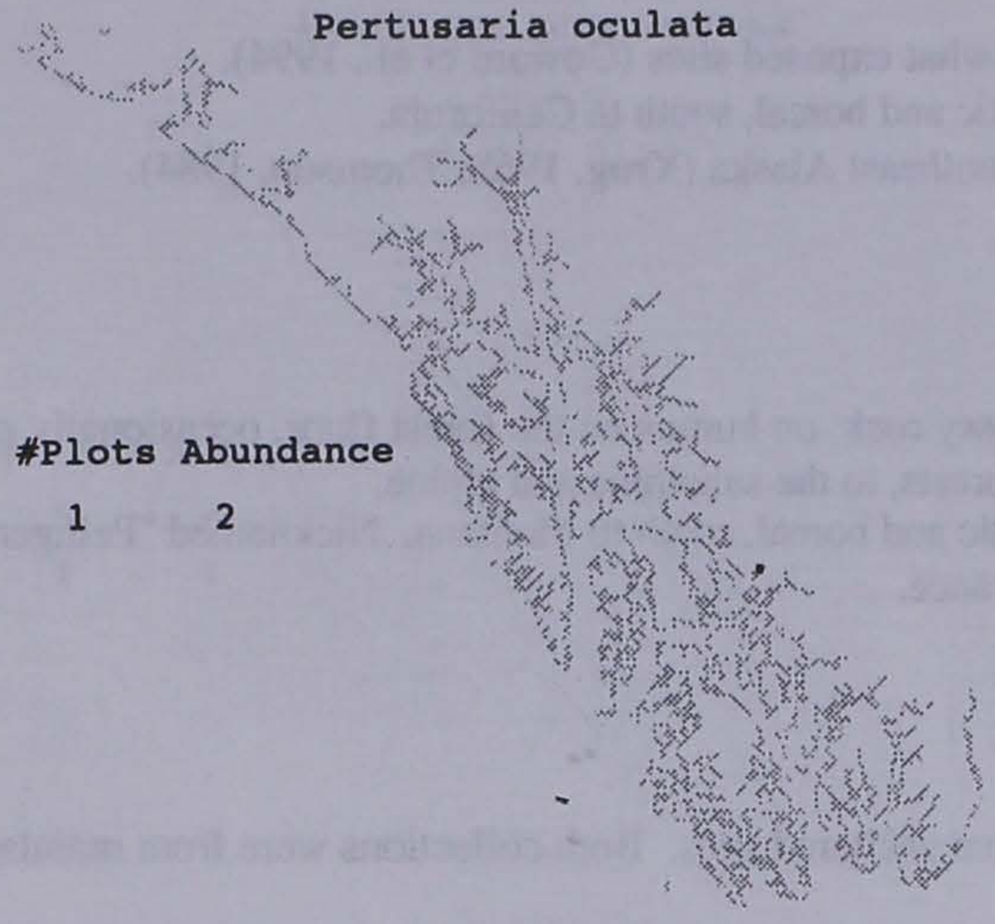
Pertusaria borealis Erichsen
Abundance: 6, common.
Habitat: on bark of *Picea* and *Alnus* near beach edges as well as inland.
Abundance in North America/Range: infrequent overall but common in limited range (southeast Alaska to Northern Washington). Endemic to North America, primarily the Pacific Northwest (Dibben, 1980). Also occurs frequently in Europe.
Notes: Also collected by Viereck (# 8658 WIS) near the Mendenhall Glacier by Juneau.

Pertusaria cf. bryontha (Ach.) Nyl.
Abundance: 1, ?
Habitat:
Abundance in North America/Range: North American arctic species which is rarely abundant and is not commonly collected; circumarctic and widespread throughout alpine areas of Europe.

Pertusaria dactylina (Ach.) Nyl.
Abundance: 1, ?
Habitat: on rock in the alpine.
Abundance in North America/Range: common; circumpolar arctic-alpine. Alaska to British Columbia. South to New York in the east. Known from alpine areas of Europe and Asia. Bipolar.

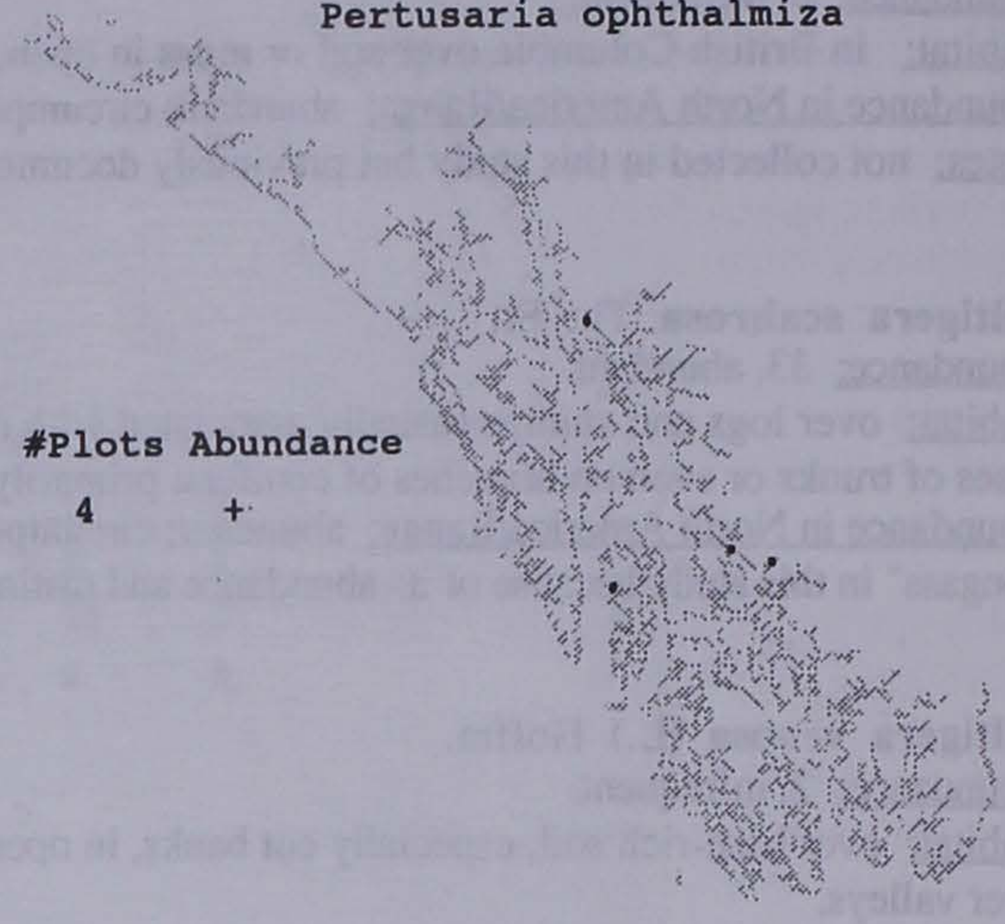
Pertusaria oculata (Dickson) Th. Fr.
Abundance: 1, ?
Habitat: single collection among mosses on a vertical rock face on LeConte Bay about 2 miles from the saltwater terminus of the glacier. Occurring in the alpine and subalpine in British Columbia (Goward et al., 1992).
Abundance in North America/Range: common; circumpolar arctic. Alaska, east to Baffin Island.

Pertusaria oculata



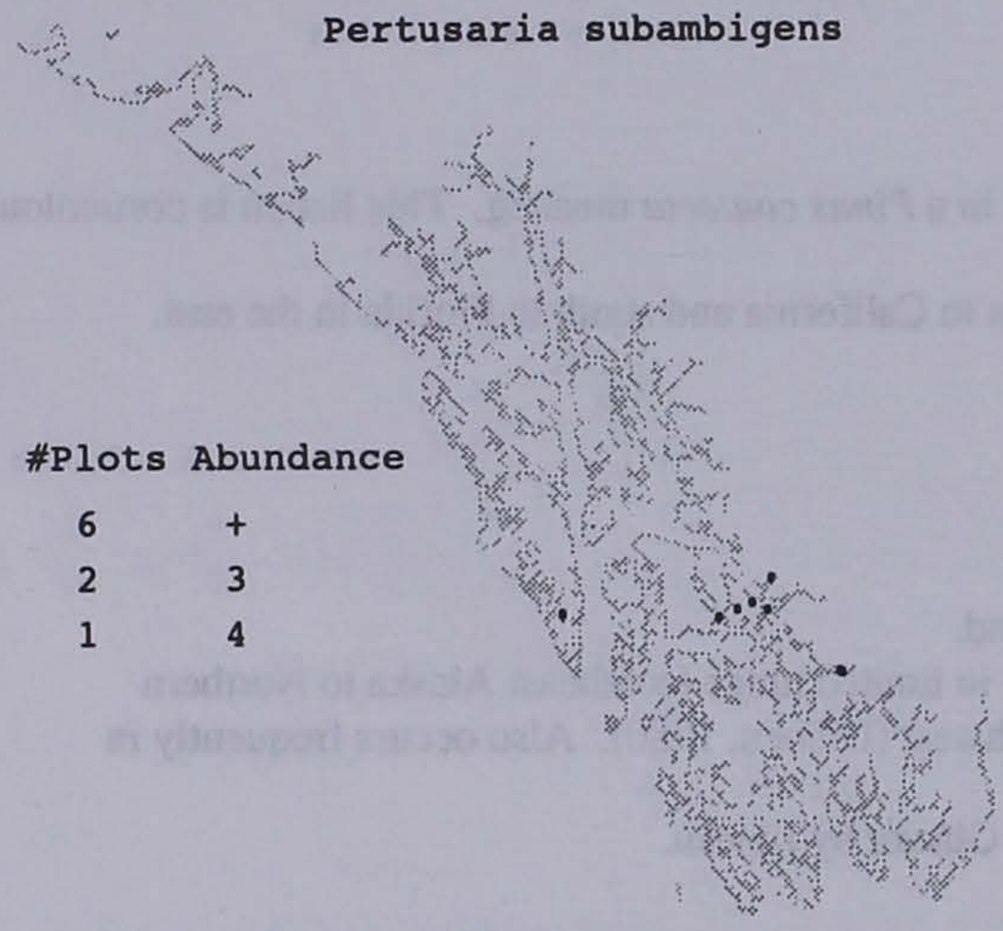
#Plots	Abundance
1	2

Pertusaria ophthalmiza



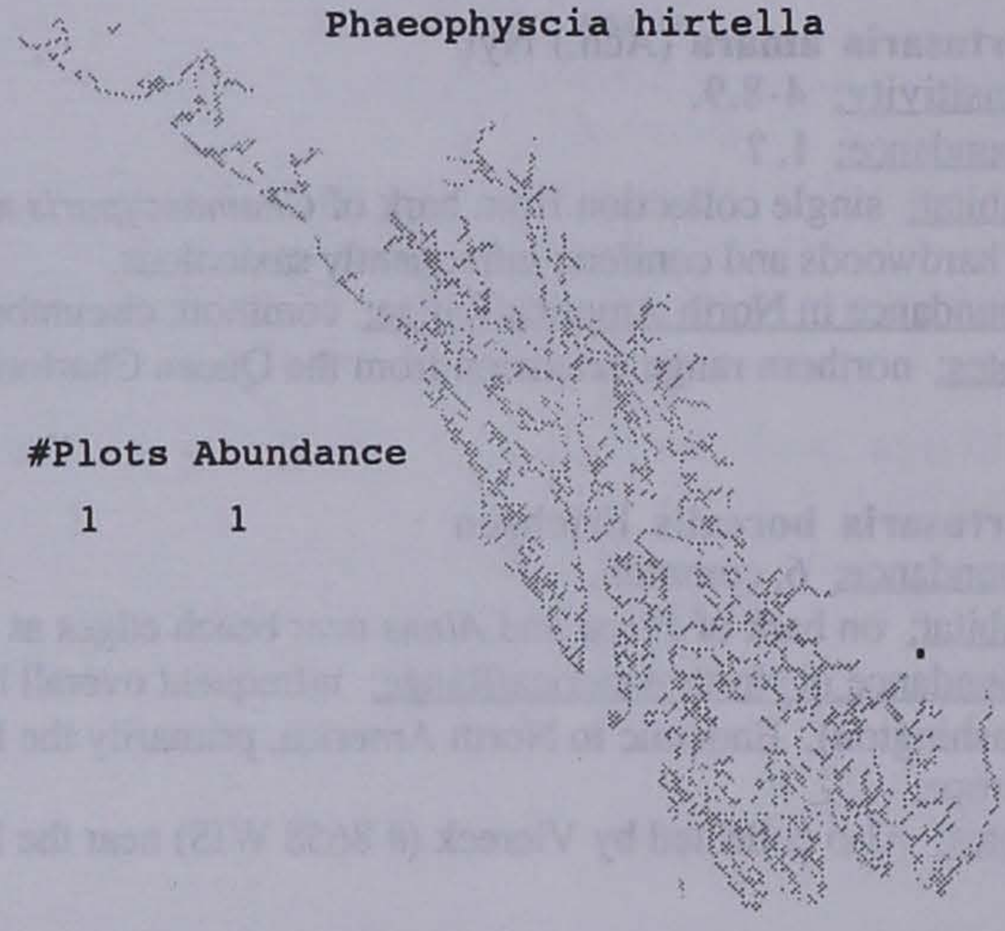
#Plots	Abundance
4	+

Pertusaria subambigens



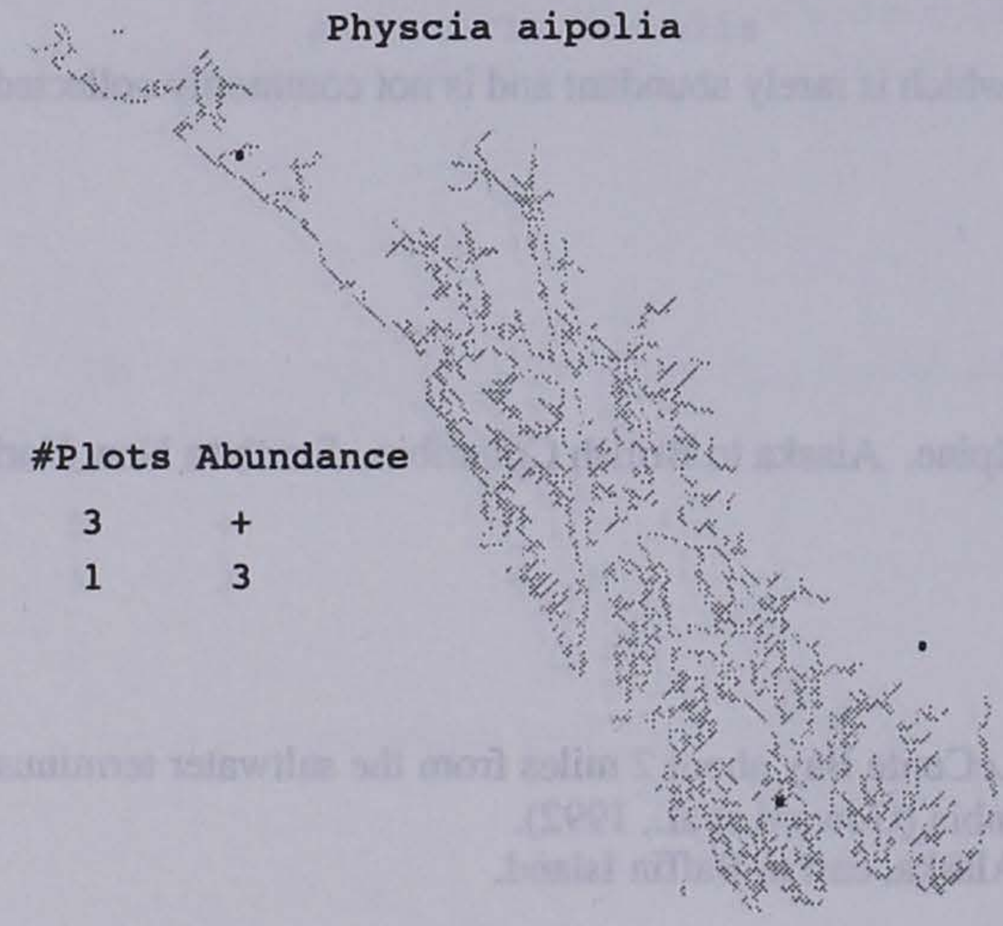
#Plots	Abundance
6	+
2	3
1	4

Phaeophyscia hirtella



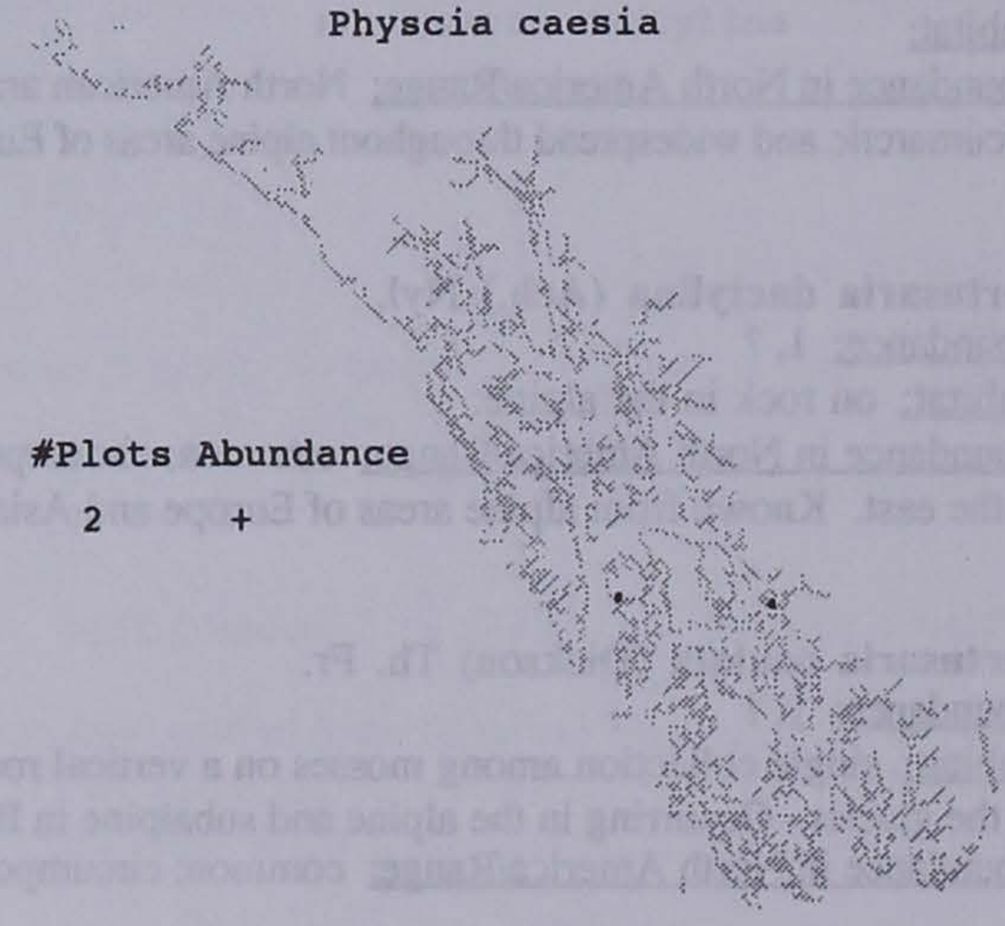
#Plots	Abundance
1	1

Physcia aipolia



#Plots	Abundance
3	+
1	3

Physcia caesia



#Plots	Abundance
2	+

Pertusaria ophthalmiza (Nyl.) Nyl.
Abundance: 4, common.
Habitat: on branches of *Alnus* at low elevations near rivers or marine beaches.
Abundance in North America/Range: common; circumboreal, eastern and western North America. Alaska to Texas.

Pertusaria sommerfeltii (Flörke ex Sommerf.) Fr.
Abundance: 0, ?
Habitat: typically on hardwoods in North America (Dibben, 1980).
Abundance in North America/Range: boreal-temperate, most common in North America and Eurasia but probably circumboreal.
Notes: reported from Mendenhall Valley (McCullough, 1965).

Pertusaria subambigens Dibben
Abundance: 9, common.
Habitat: on twigs and branches of spruce and alder at low elevations, mainly near water edges, but also in mixed conifer and shore pine open forests.
Abundance in North America/Range: common; Pacific Northwest North American endemic.
Notes: northern range extension

Phaeophyscia ciliata (Hoffm.) Moberg
Abundance: 0, 1
Habitat: usually on deciduous trees, also on conifers and rocks (Thomson, 1963).
Abundance in North America/Range: transcontinental in North America south to Mexico, and across the Northern Hemisphere.
Notes: reported from Glacier Bay (Thomson, 1963).

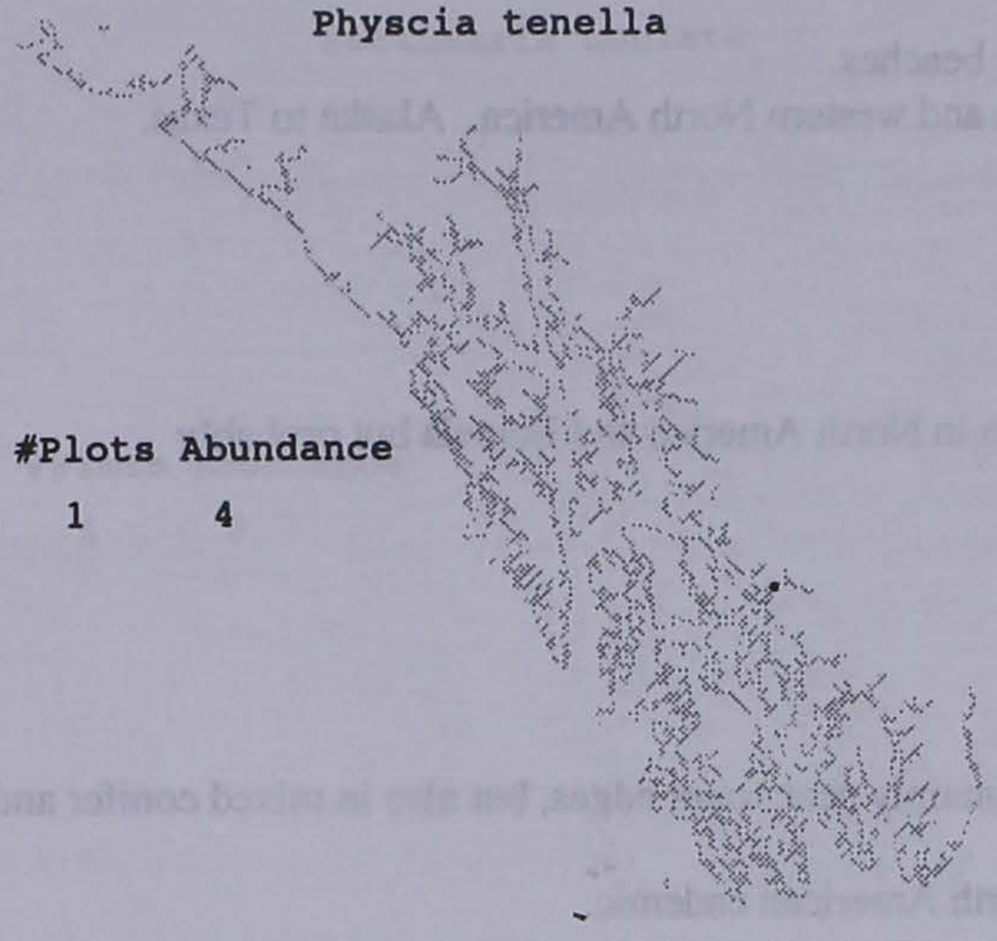
Phaeophyscia endococcinea (Körber) Moberg
Abundance: 0, ?
Habitat: on rocks and among mosses on rocks, rarely on tree bases (Thomson, 1984).
Abundance in North America/Range: rarely collected; circumpolar low arctic-alpine and boreal, Alaska to New Mexico.
Notes: reported from north Kuiu Island (Thomson, 1984).

Phaeophyscia hirtella Essl.
Abundance: 1, ?
Habitat: single collection from *Alnus rubra* along the Unuk River on the mainland.
Abundance in North America/Range: Endemic to North America, most common in the northeast U.S..

Phylliscum demangeonii (Moug. & Mont. in Mont.) Nyl.
Abundance: 0, ?
Habitat: on rocks at high tide mark.
Abundance in North America/Range: rare and poorly understood in North America where it is found from southeastern Alaska south to California. Also known from Europe, where it is rare..
Notes: reported from Zarembo Bay, Zarembo Island (Herre, 1919). Very small lichen, probably often overlooked.

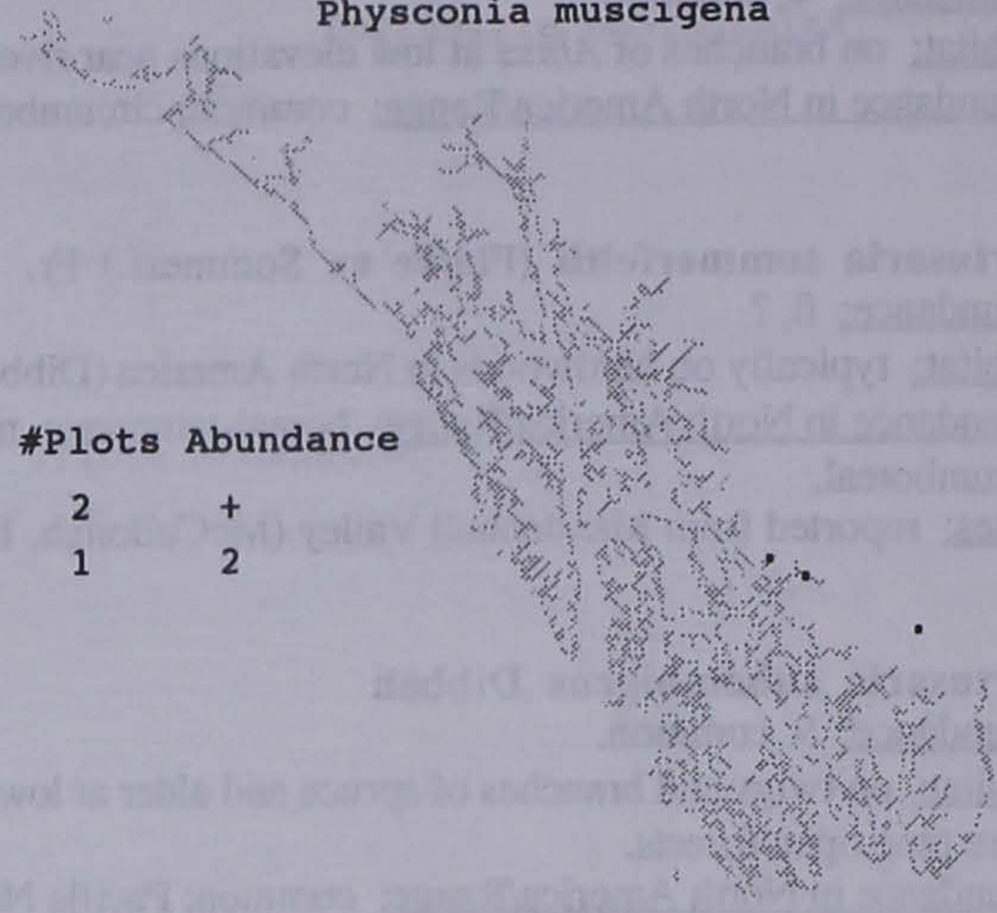
Physcia adscendens (Fr.) H. Olivier
Sensitivity: 2-6.7.
SO_2 Sensitivity: intermediate, 50-80/90.
Abundance: 1, infrequent.
Habitat: on twigs of *Picea sitchensis*.
Abundance in North America/Range: abundant; circumpolar boreal, Alaska to California.

Physcia tenella



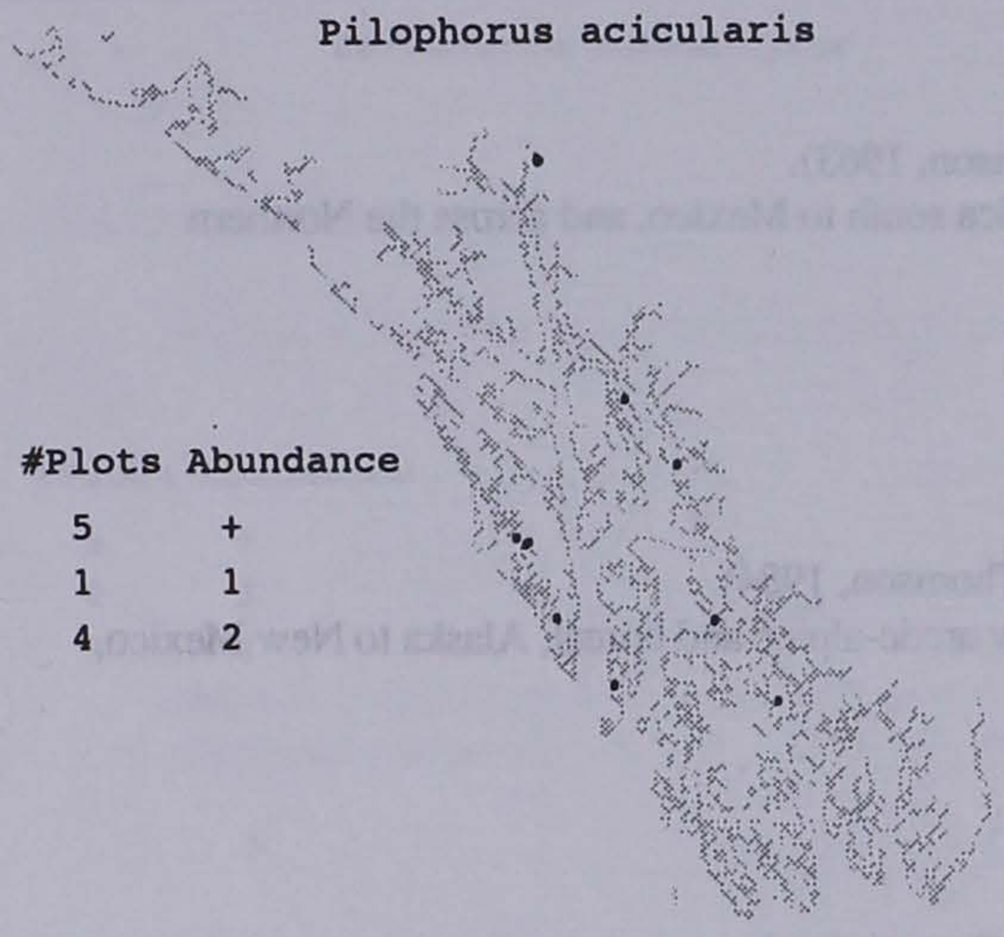
#Plots	Abundance
1	4

Physconia muscigena



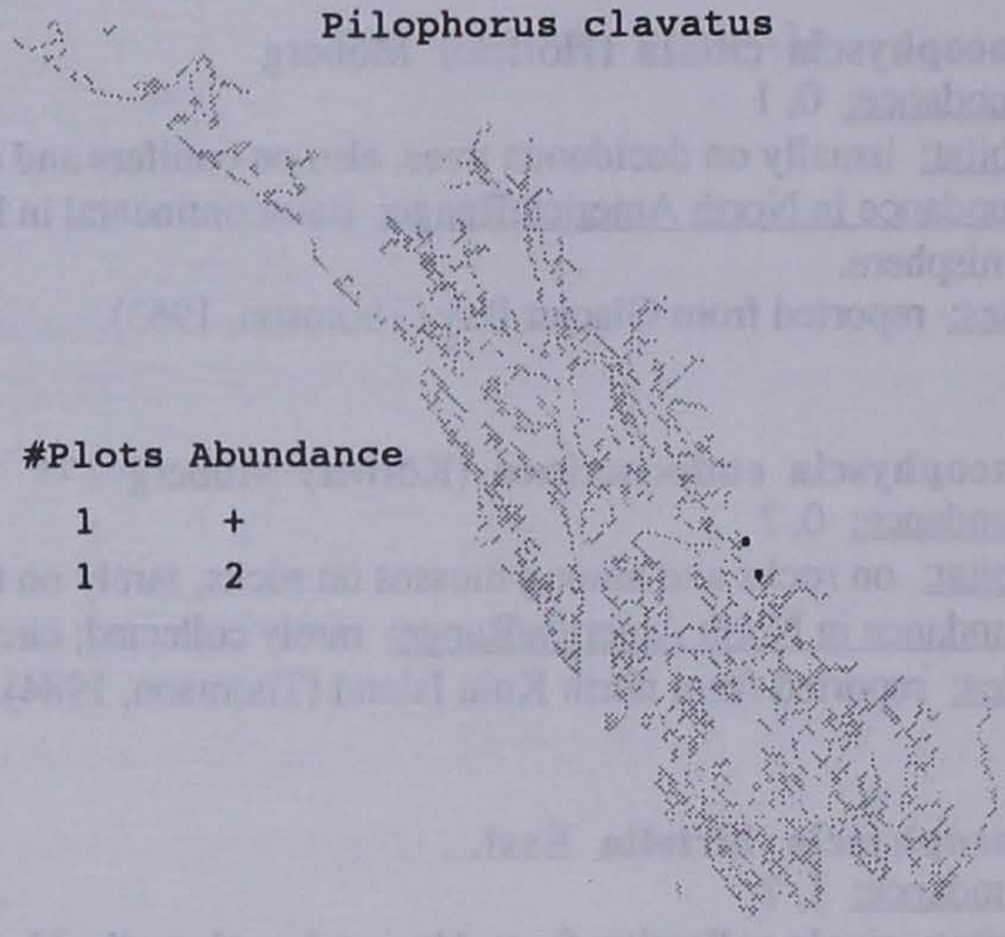
#Plots	Abundance
2	+
1	2
1	2

Pilophorus acicularis



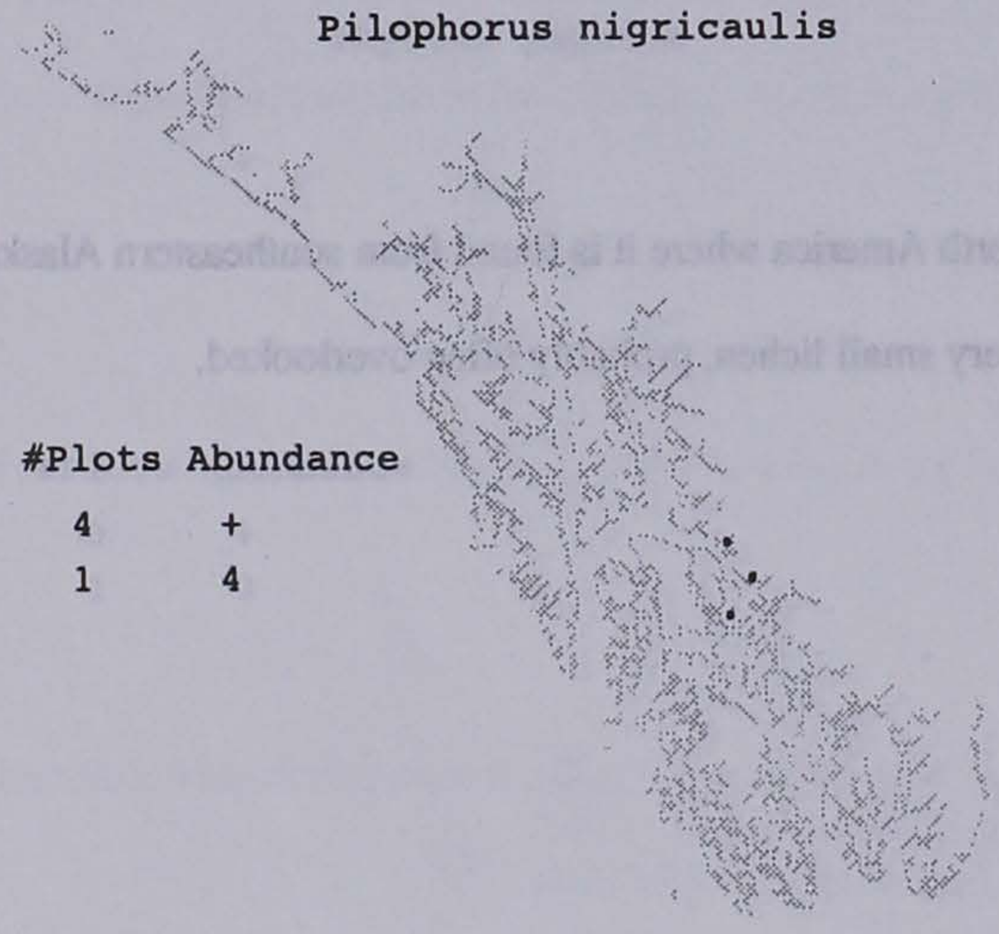
#Plots	Abundance
5	+
1	1
4	2

Pilophorus clavatus



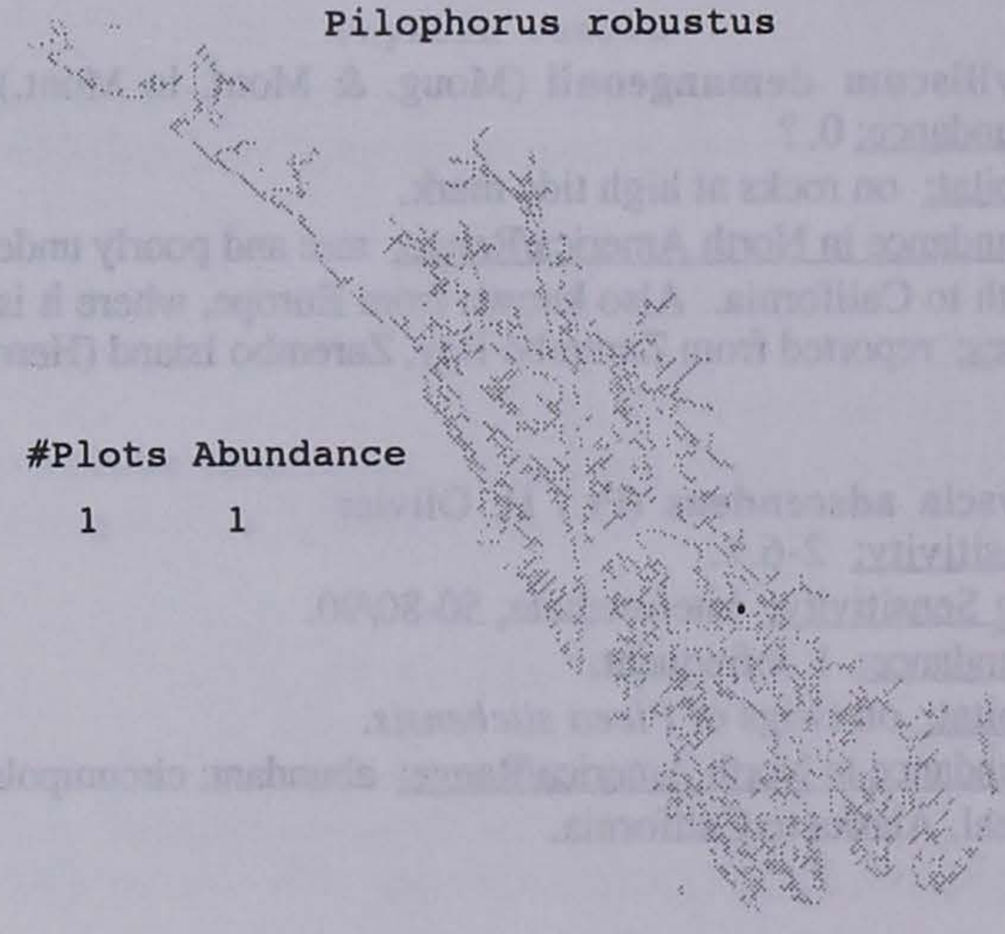
#Plots	Abundance
1	+
1	2
1	2

Pilophorus nigricaulis



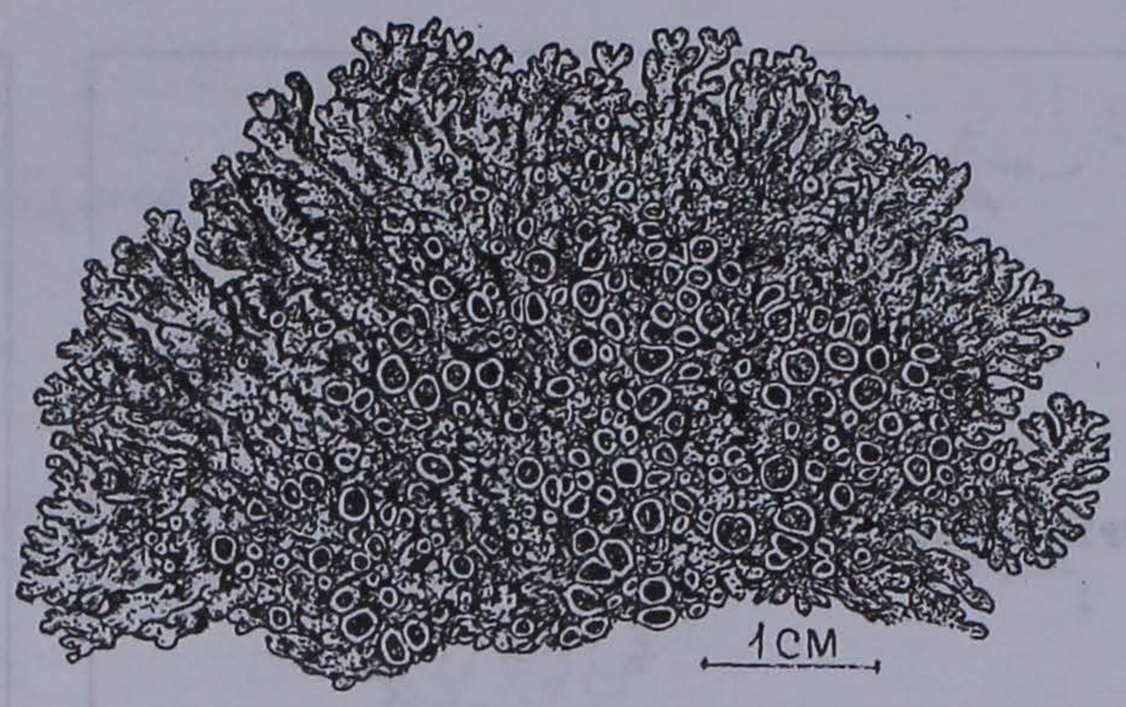
#Plots	Abundance
4	+
1	4

Pilophorus robustus



#Plots	Abundance
1	1

Physcia aipolia (Ehrh. ex Humb.) Furnr.
Sensitivity: 4-10.
SO_2 Sensitivity: intermediate, 26-50/65.
Abundance: 4, infrequent.
Habitat: over deciduous trees (*Populus*) and shrubs (*Salix*) in open sites at lower elevations.
Abundance in North America/Range: common; circumpolar boreal, Alaska to Mexico.



Physcia aipolia

Physcia caesia (Hoffm.) Fürnr.
Sensitivity: 5.6-8.7.
Abundance: 2, ?
Habitat: over rock in open to somewhat sheltered sites.
Abundance in North America/Range: common; circumpolar low arctic and boreal, Alaska to Arizona.

Physcia dubia (Hoffm.) Lett.
Sensitivity: 1.2-4.4.
SO_2 Sensitivity: tolerant, 90-110/125.
Abundance: 0, ?
Habitat: over base-rich rock in open sites in British Columbia (Goward et al., 1992).
Abundance in North America/Range: common; circumpolar low arctic and boreal, Alaska to California.
Notes: previously documented from southeastern Alaska (Krog, 1968).

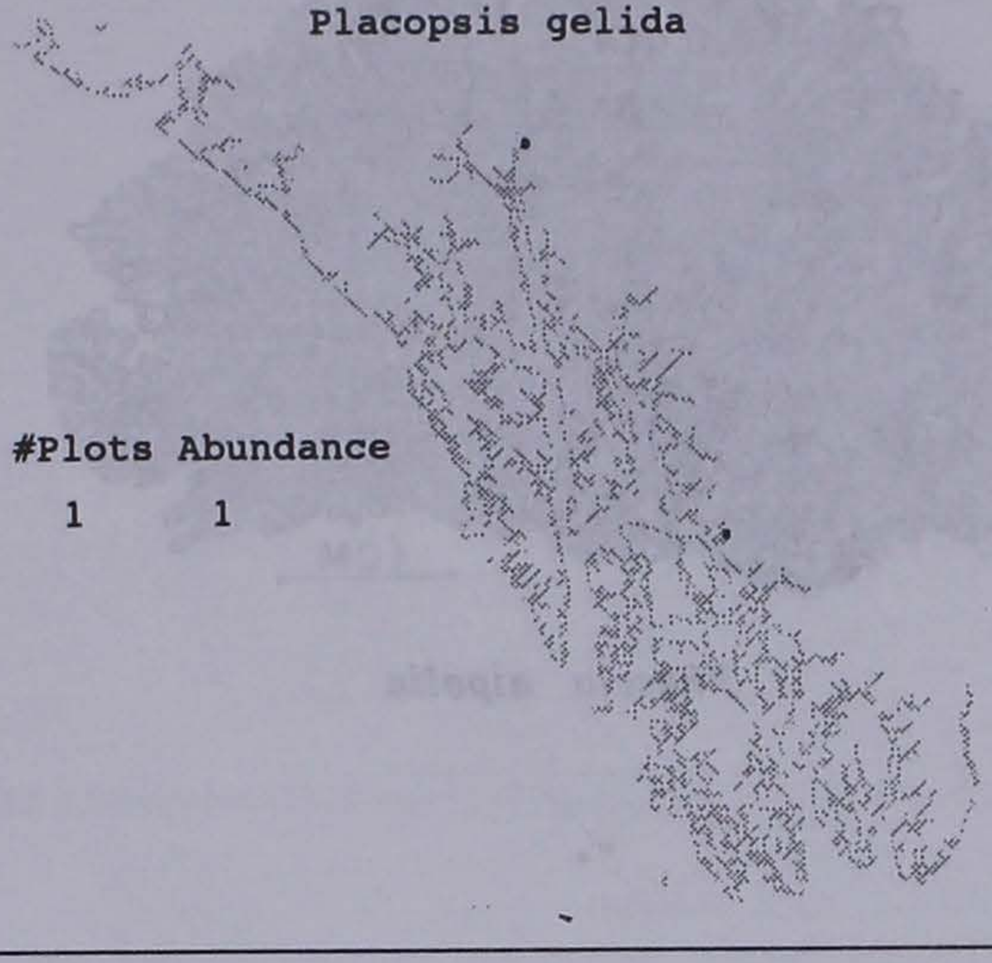
Physcia stellaris (L.) Nyl.
Abundance: 0, ?
Habitat: on deciduous and coniferous trees and shrubs, occasionally on rock or wood (Thomson, 1963).
Abundance in North America/Range: rare in western North America, but widespread and very common elsewhere including Europe; circumboreal in the Northern Hemisphere.
Notes: reported from Glacier Bay (Cummings, 1904). This record should be checked as *P. stellaris* can be easily confused with the much more common *P. aipolia* in western North America (Thomson, 1963). *P. stellaris* has also been reported from intermontane British Columbia, where it is considered rare (Goward et al., 1992).

Physcia tenella (Scop.) DC. in Lam. & DC.
Sensitivity: 1.7-7.1.
SO_2 Sensitivity: intermediate, 60/70.
Abundance: 1, ?
Habitat: over deciduous trees and shrubs; our collections were from the Stikine River valley on the mainland.
Abundance in North America/Range: probably incompletely circumpolar, southeast Alaska to California.

Physconia muscigena (Ach.) Poelt
Abundance: 3, ?
Habitat: over rock and bark (*Populus)* along mainland river valleys and near salt water. Occurring in the alpine and subalpine in British Columbia (Goward et. al, 1994). Calciphilous, known from bird perches and limestones.
Abundance in North America/Range: common; circumpolar low arctic and boreal, Alaska to California.

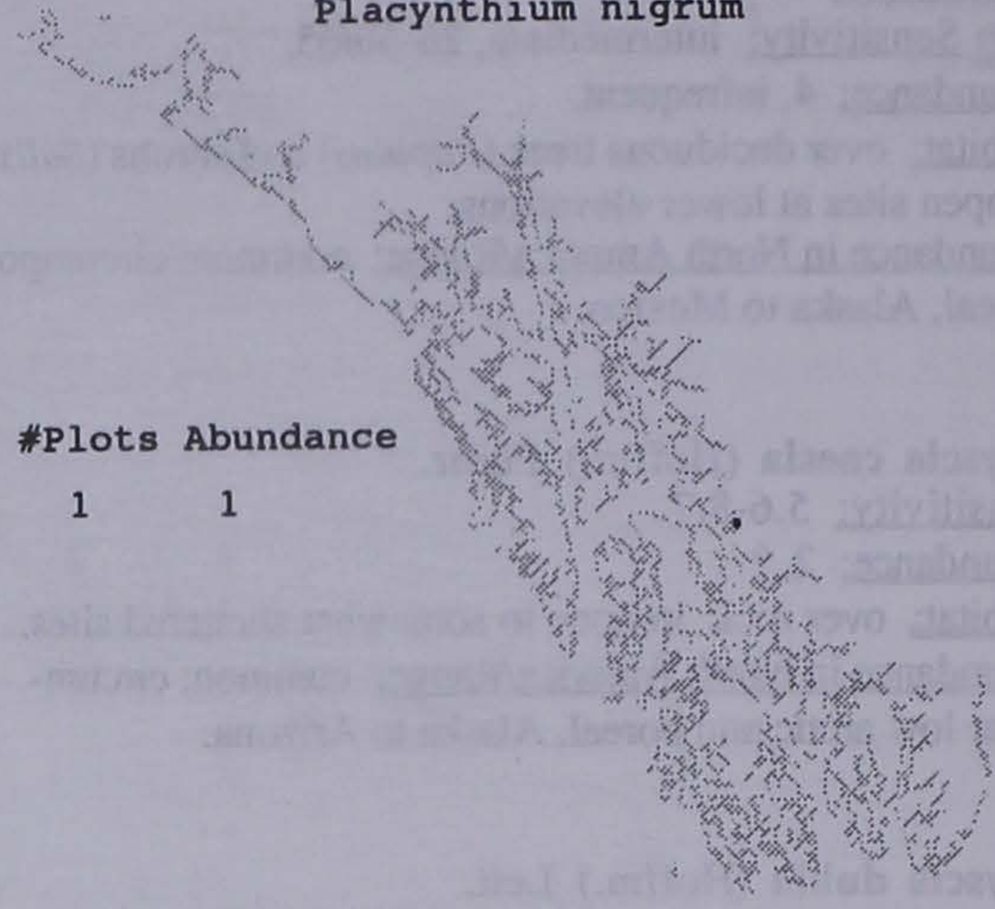
Pilophorus acicularis (Ach.) Th. Fr.
Abundance: 8, common.
Habitat: on siliceous rock outcrops, once on decaying wood; in open to sheltered forests from low elevations to the subalpine.
Abundance in North America/Range: most abundant *Pilophorus* in North America. From Alaska to California along the Pacific coast. Also from Japan, eastern China and Kamchatka.

Placopsis gelida



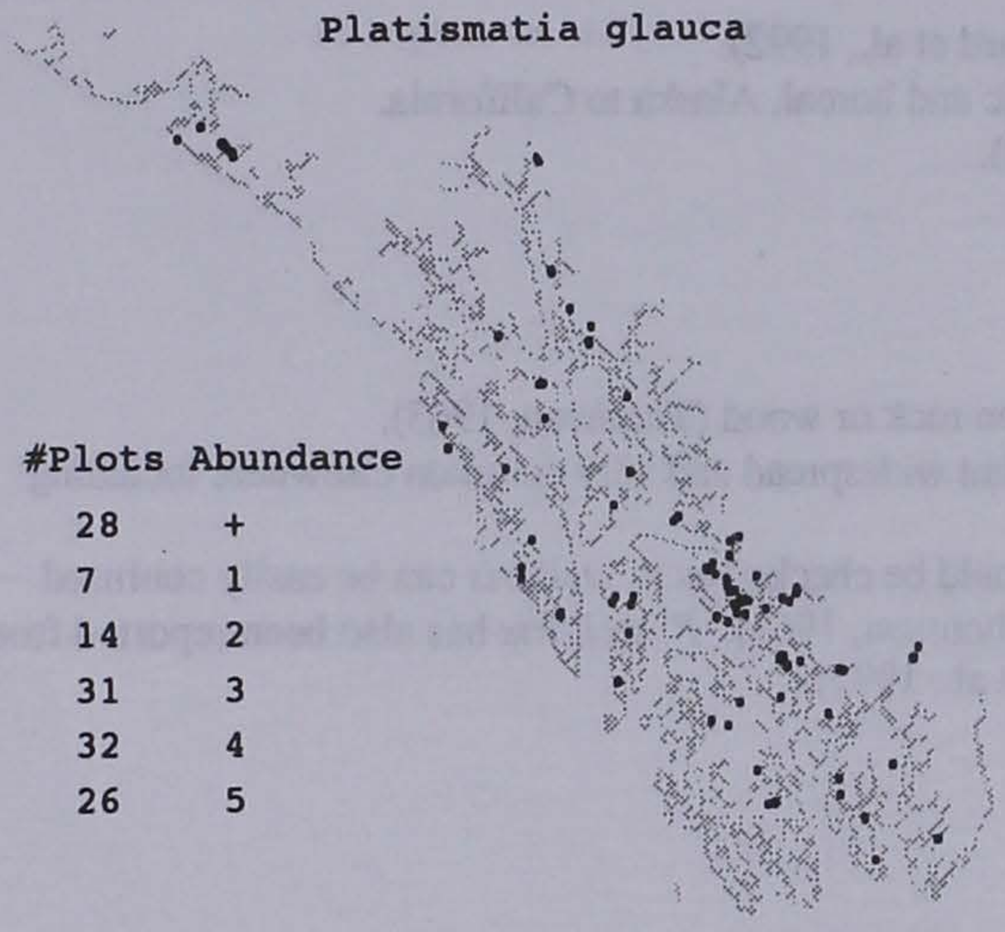
#Plots	Abundance
1	1

Placynthium nigrum



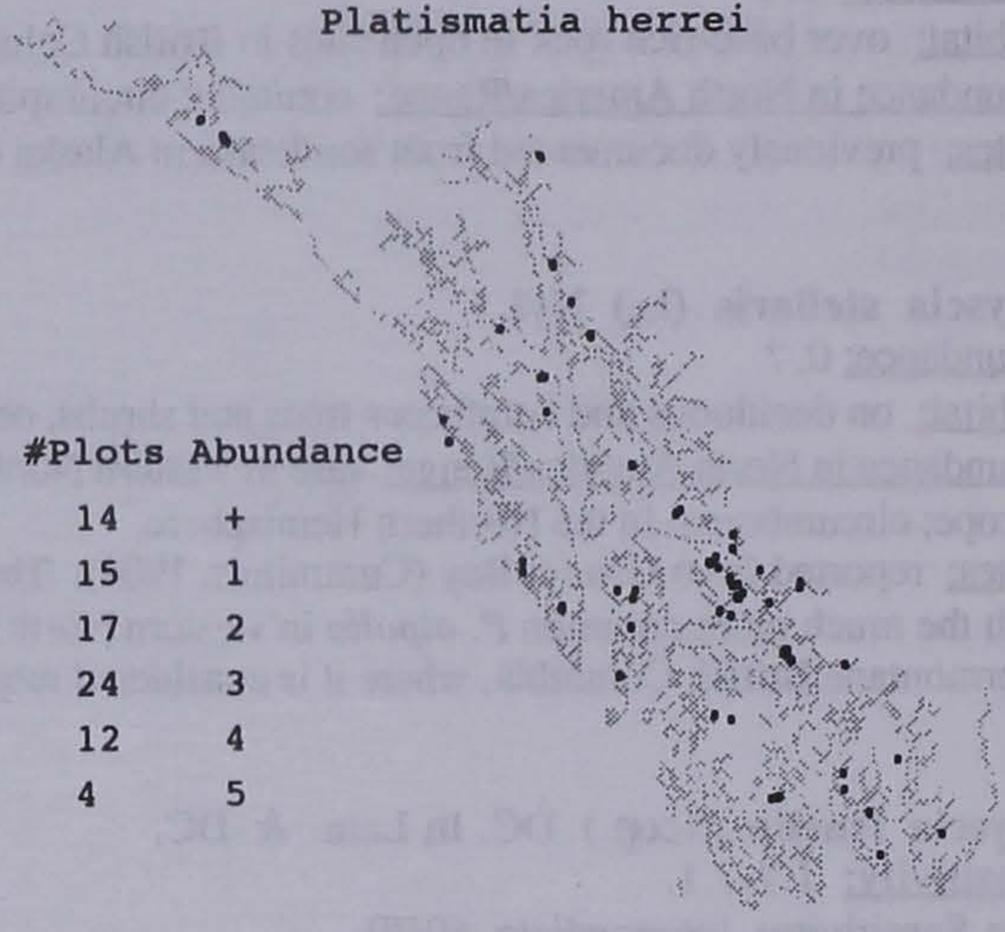
#Plots	Abundance
1	1

Platismatia glauca



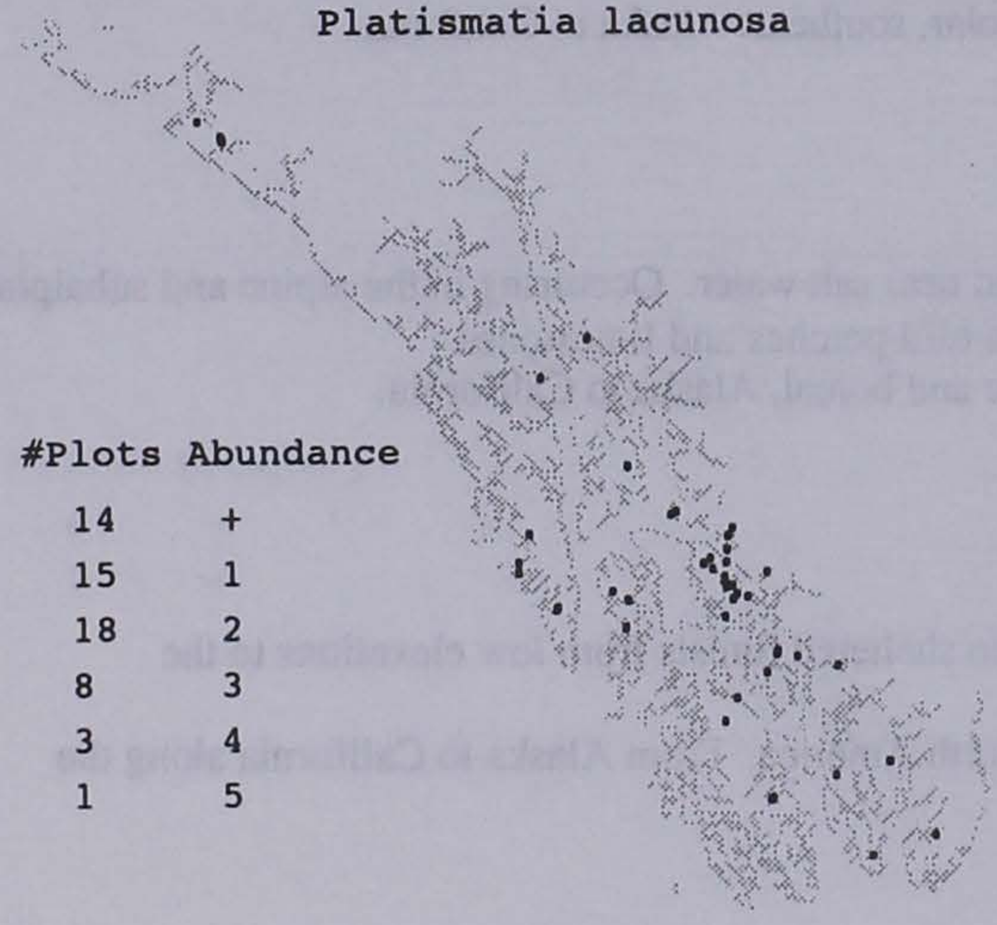
#Plots	Abundance
28	+
7	1
14	2
31	3
32	4
26	5

Platismatia herrei



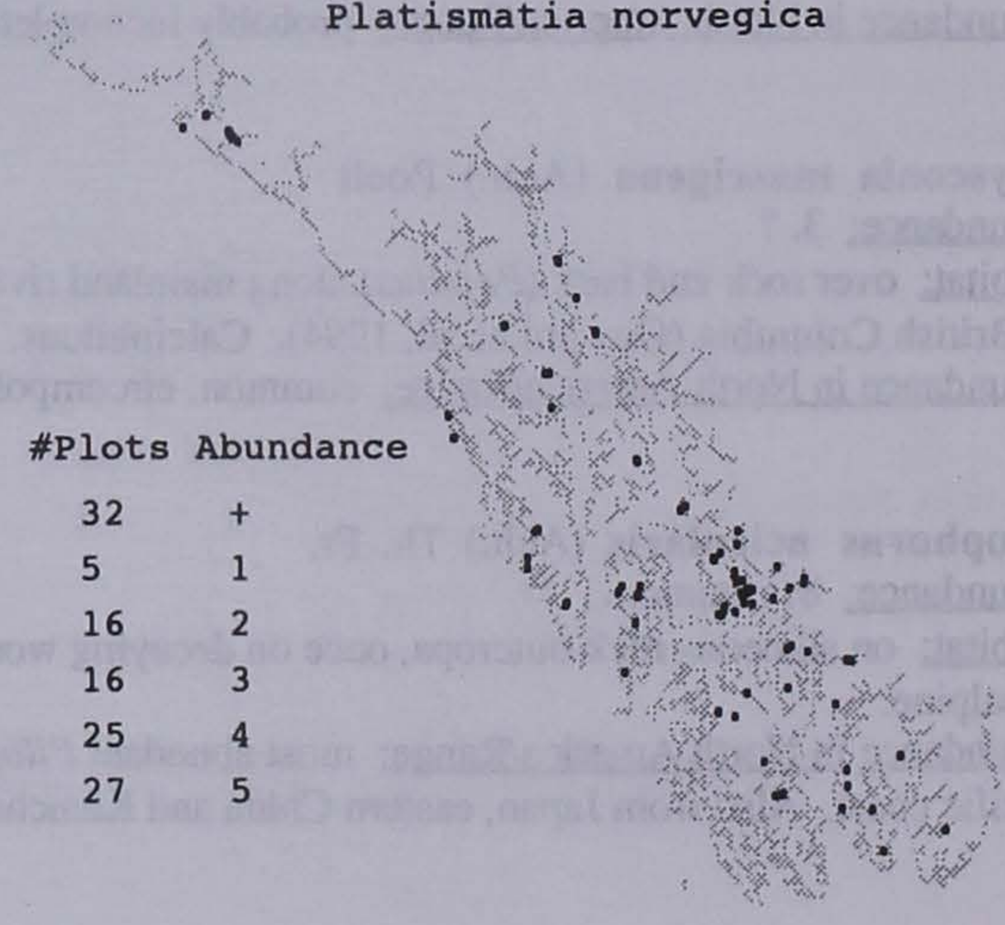
#Plots	Abundance
14	+
15	1
17	2
24	3
12	4
4	5

Platismatia lacunosa



#Plots	Abundance
14	+
15	1
18	2
8	3
3	4
1	5

Platismatia norvegica



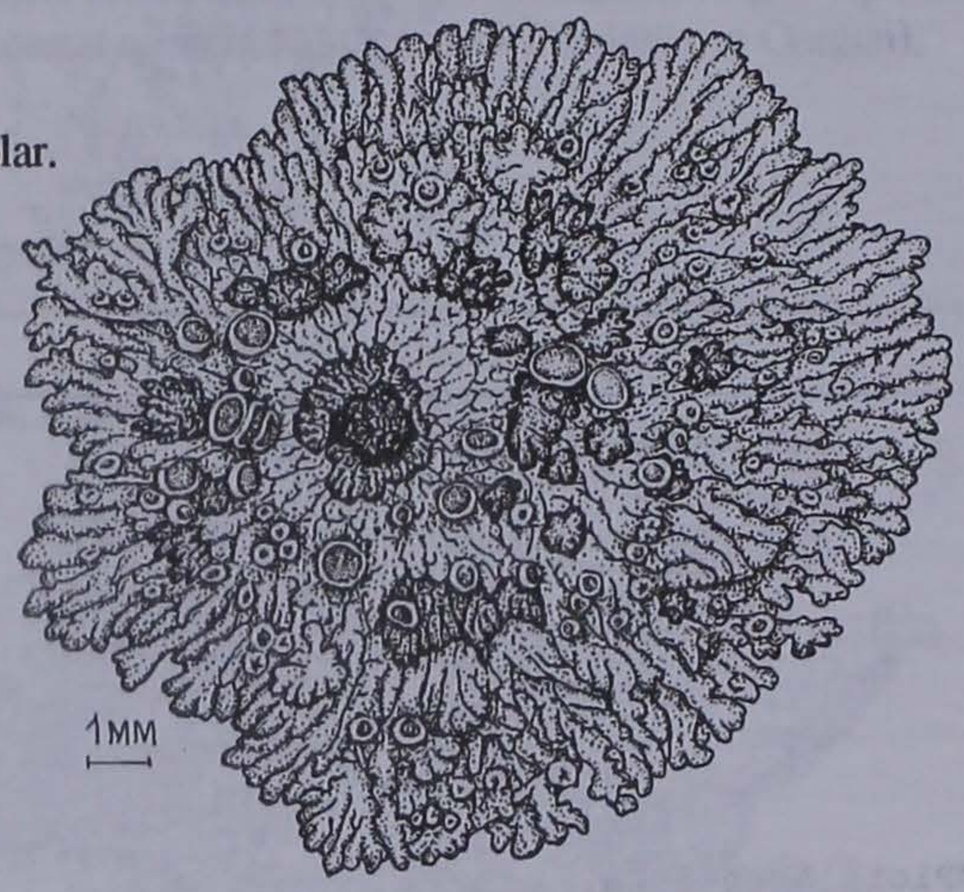
#Plots	Abundance
32	+
5	1
16	2
16	3
25	4
27	5

Pilophorus clavatus Th. Fr.
Abundance: 1, common.
Habitat: our collection from rock in the alpine.
Abundance in North America/Range: from Alaska to California along the Pacific coast. Also from Japan, and the Kamchatka and Chukoti Peninsulas.

Pilophorus nigricaulis Satô
Abundance: 5, infrequent.
Habitat: on siliceous rock from low elevations to the subalpine and alpine.
Abundance in North America/Range: rare; from Alaska to California along the Pacific coast. Also known from Japan.

Pilophorus robustus Th. Fr.
Abundance: 1, ?
Habitat: single collection from rock in the subalpine.
Abundance in North America/Range: infrequent-rare; arctic, circumpolar.
Notes: southern range extension.

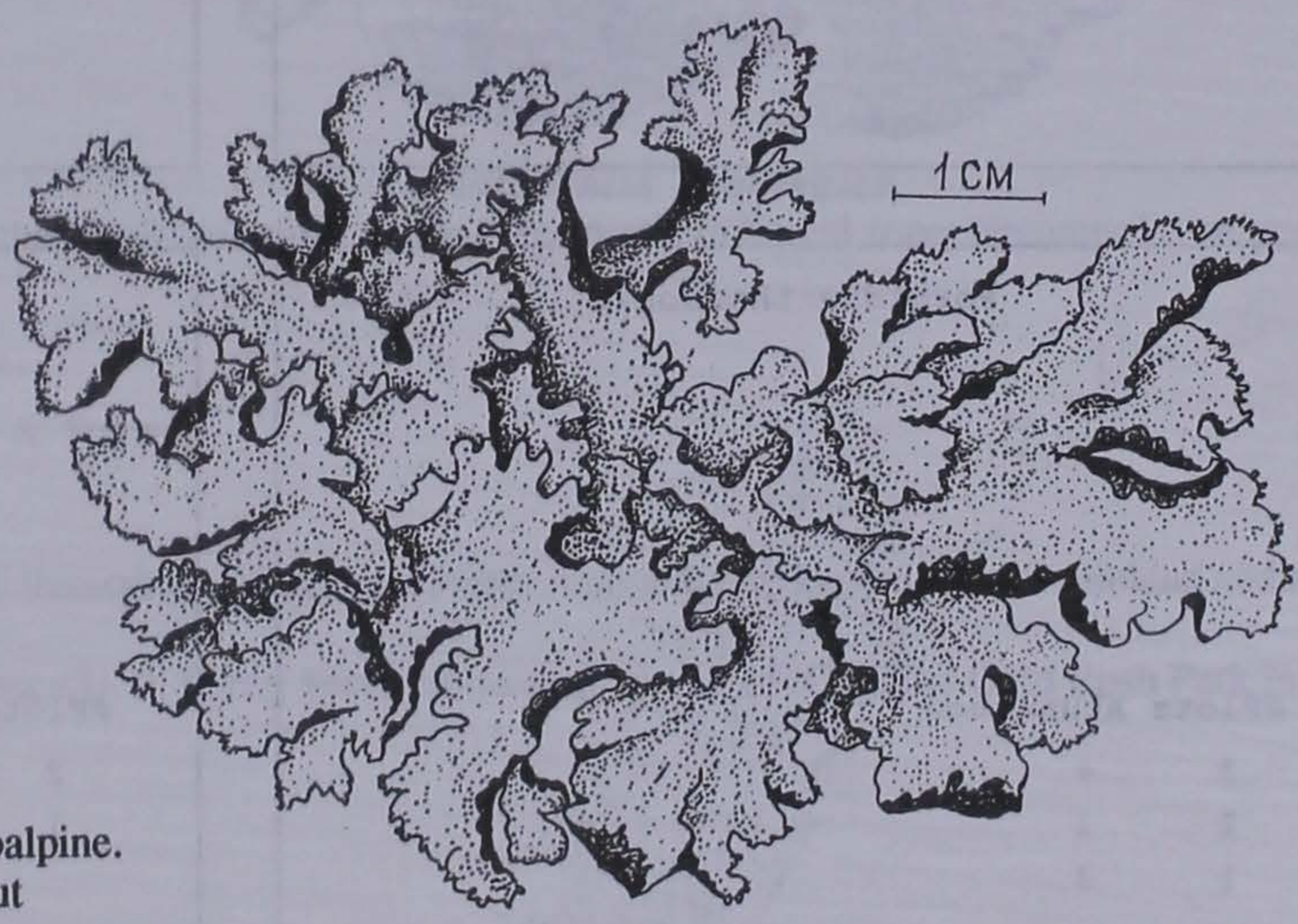
Placopsis gelida (L.) Linds.
Abundance: 3, abundant.
Habitat: on rock from low elevations to the alpine. Very tolerant (on asphalt, along crushed rock road base, on vertical rock faces on the north sides of alpine summits).
Abundance in North America/Range: common; circumpolar arctic to temperate; bipolar.



Placopsis gelida

Placynthium nigrum (Huds.) Gray
Abundance: 1, ?
Habitat: on calcareous rocks (Thomson, 1967).
Abundance in North America/Range: widely distributed and common in temperate and boreal parts of the Northern Hemisphere and North America. Rare in British Columbia.

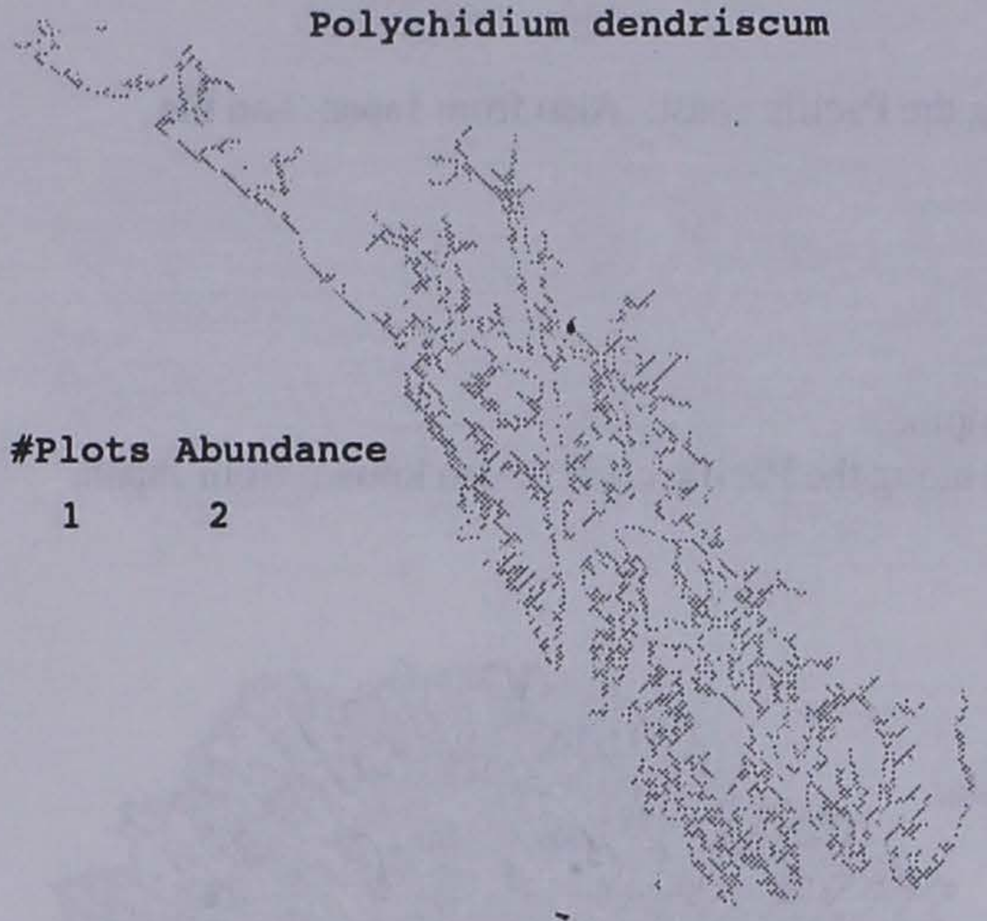
Platismatia glauca (L.) Culb. & Culb.
Sensitivity: 1.7-9.2.
SO_2 Sensitivity: intermediate, 52-78/-.
Abundance: 134, abundant.
Habitat: over conifers, less frequently on deciduous shrubs, in most forest types from low elevations to the subalpine.
Abundance in North America/Range: common; circumpolar boreal, western North America, eastern North America, western Eurasia, Alaska to California.



Platismatia glauca

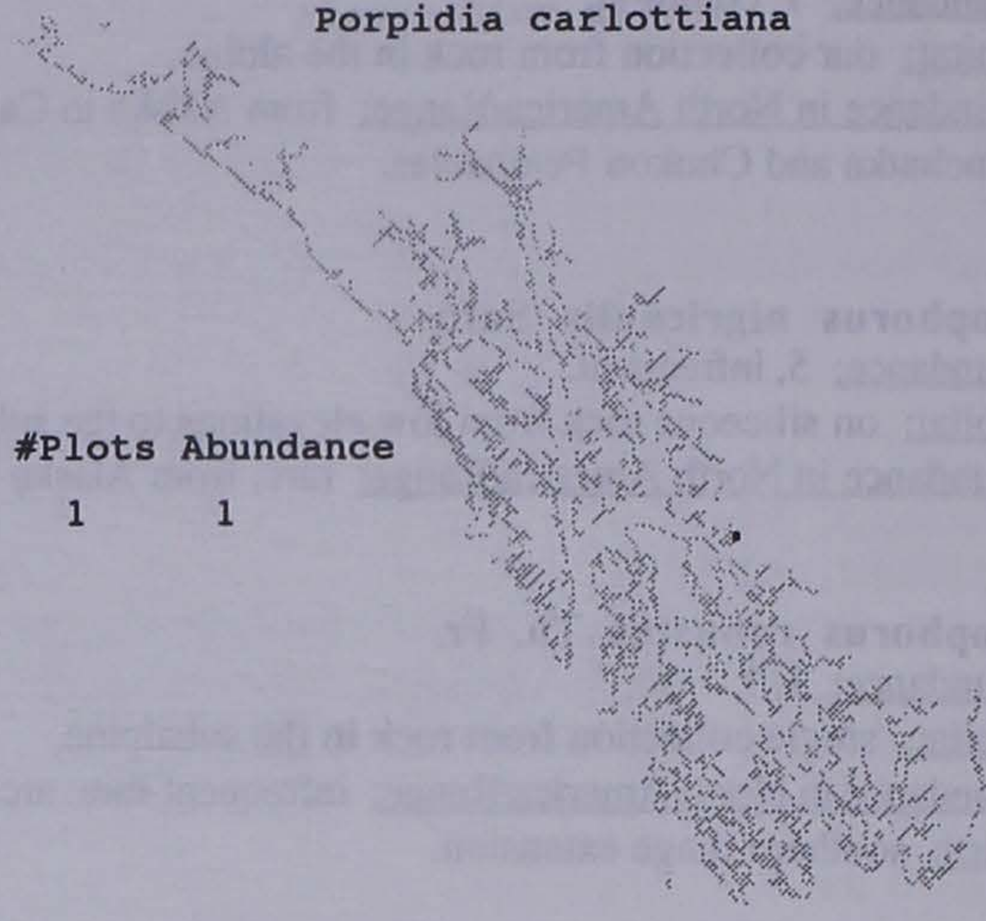
Platismatia herrei (Imsh.) Culb. & C. Culb.
Abundance: 87, abundant.
Habitat: over branches of conifers in most forest types at lower elevations, occasionally to the subalpine.
Abundance in North America/Range: common but endemic to coastal western North America, Alaska to California. Range almost identical to the coastal portion of the distribution of *Tsuga heterophylla*. (Culberson and C. Culberson, 1968).

Polychidium dendriscum



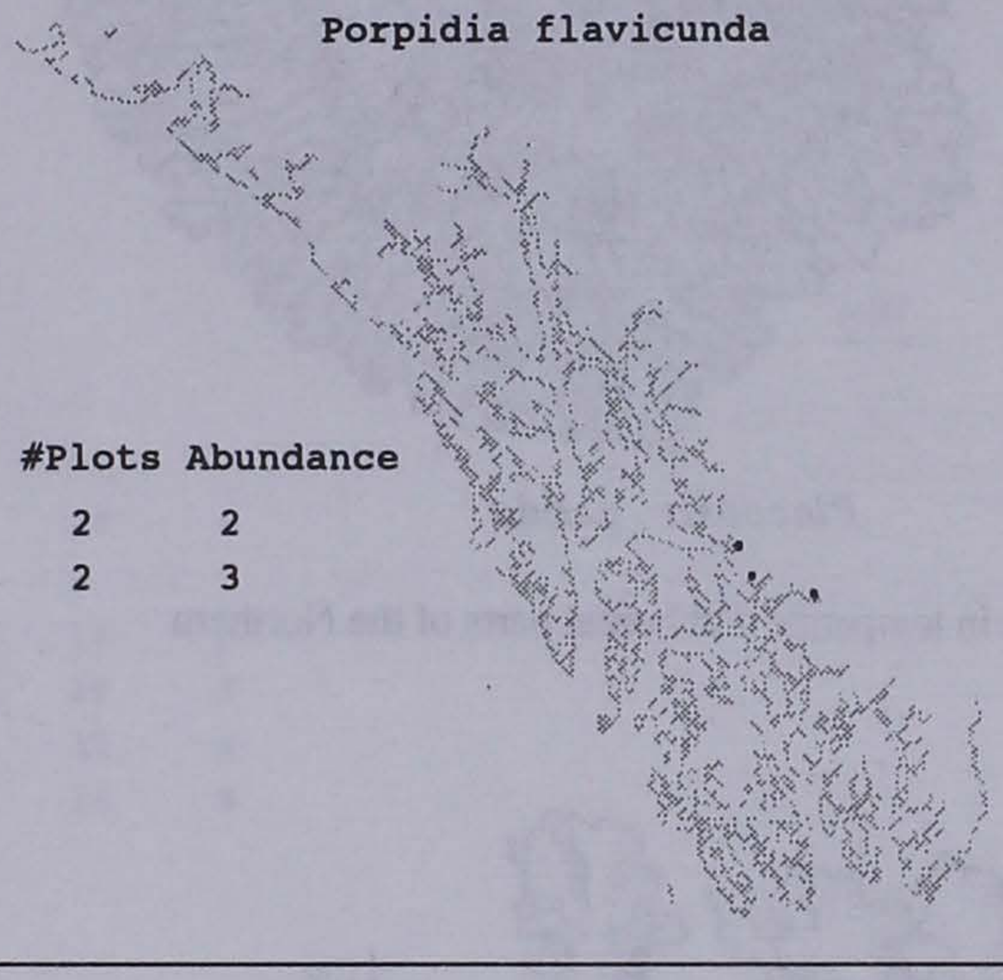
#Plots	Abundance
1	2

Porpidia carlottiana



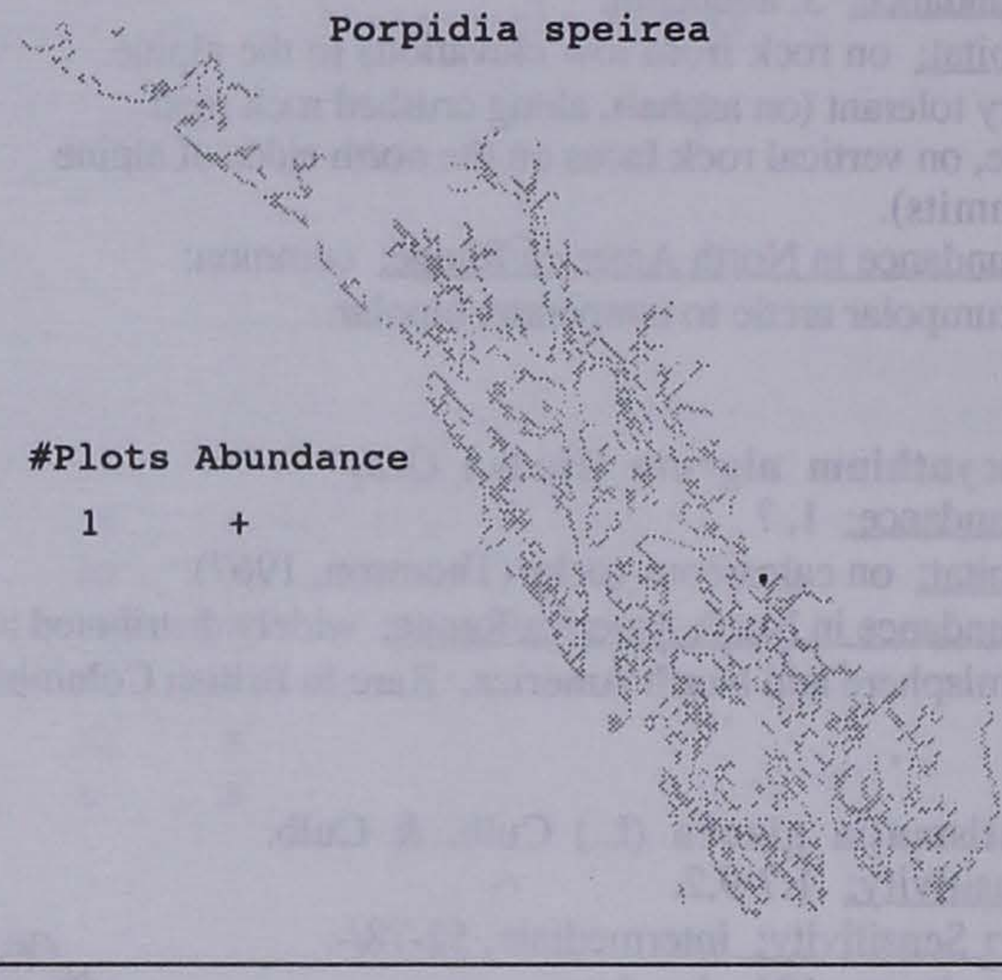
#Plots	Abundance
1	1

Porpidia flavicunda



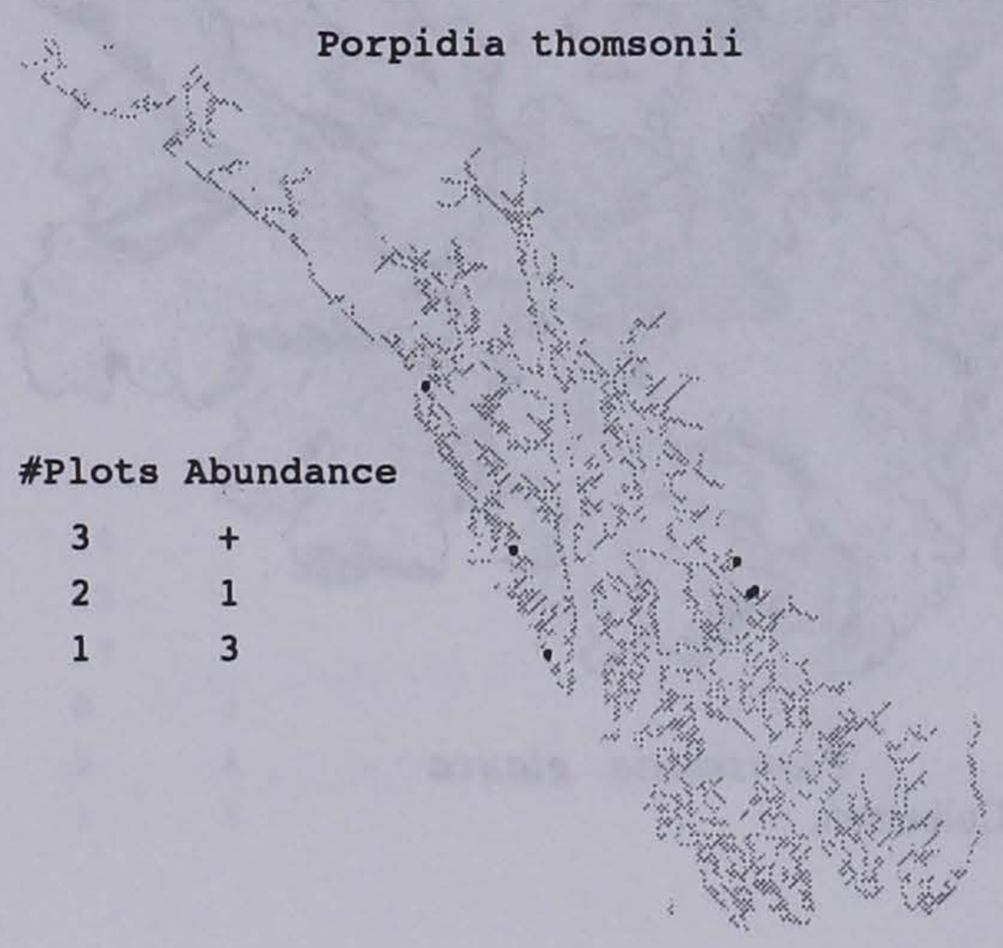
#Plots	Abundance
2	2
2	3

Porpidia speirea



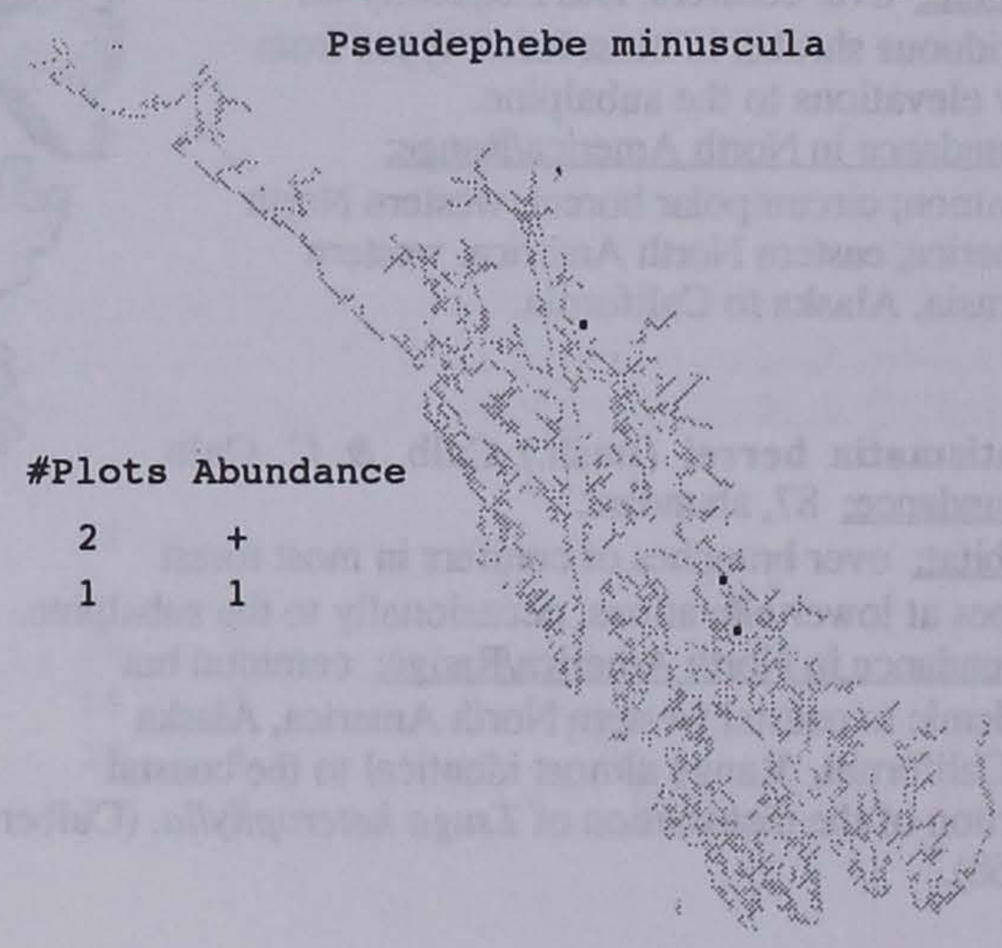
#Plots	Abundance
1	+

Porpidia thomsonii



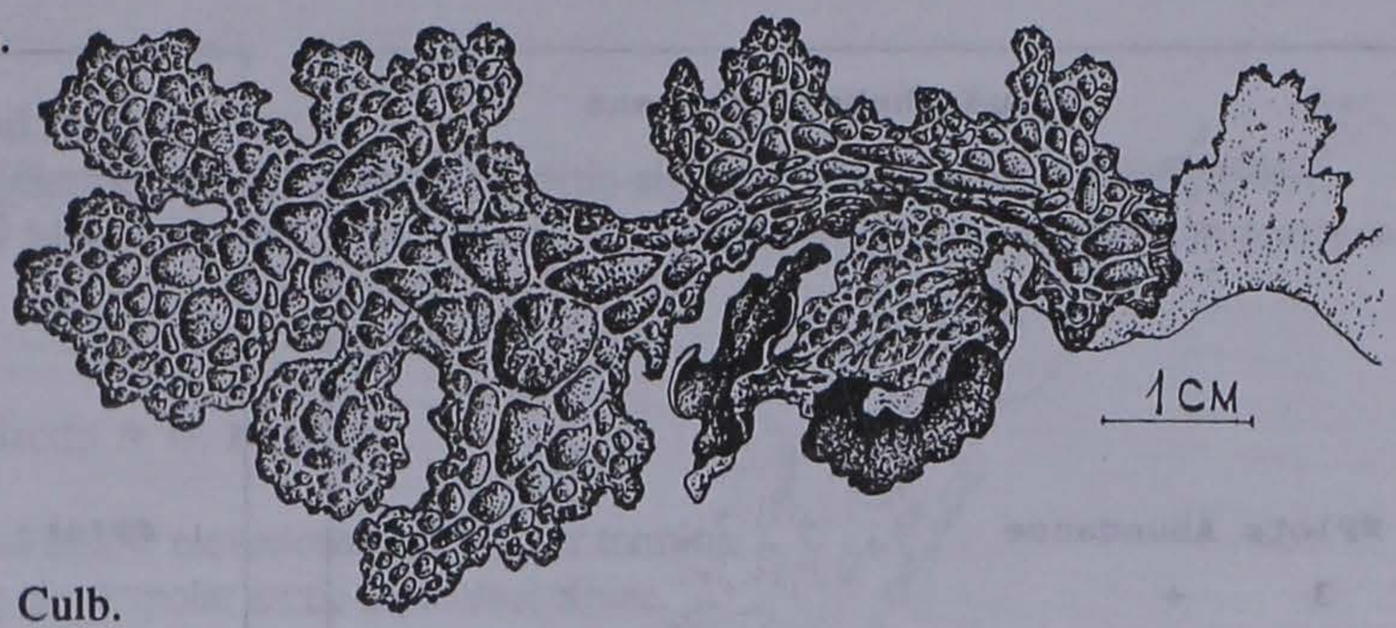
#Plots	Abundance
3	+
2	1
1	3

Pseudephebe minuscula



#Plots	Abundance
2	+
1	1

Platismatia lacunosa (Ach.) Culb. & Culb.
Abundance: 59, abundant.
Habitat: over branches of conifers and deciduous shrubs, in most forest types below the subalpine.
Abundance in North America/Range: extreme Pacific coast North American endemic, Alaska to California. Infrequent to rare throughout most of its range south of Alaska.

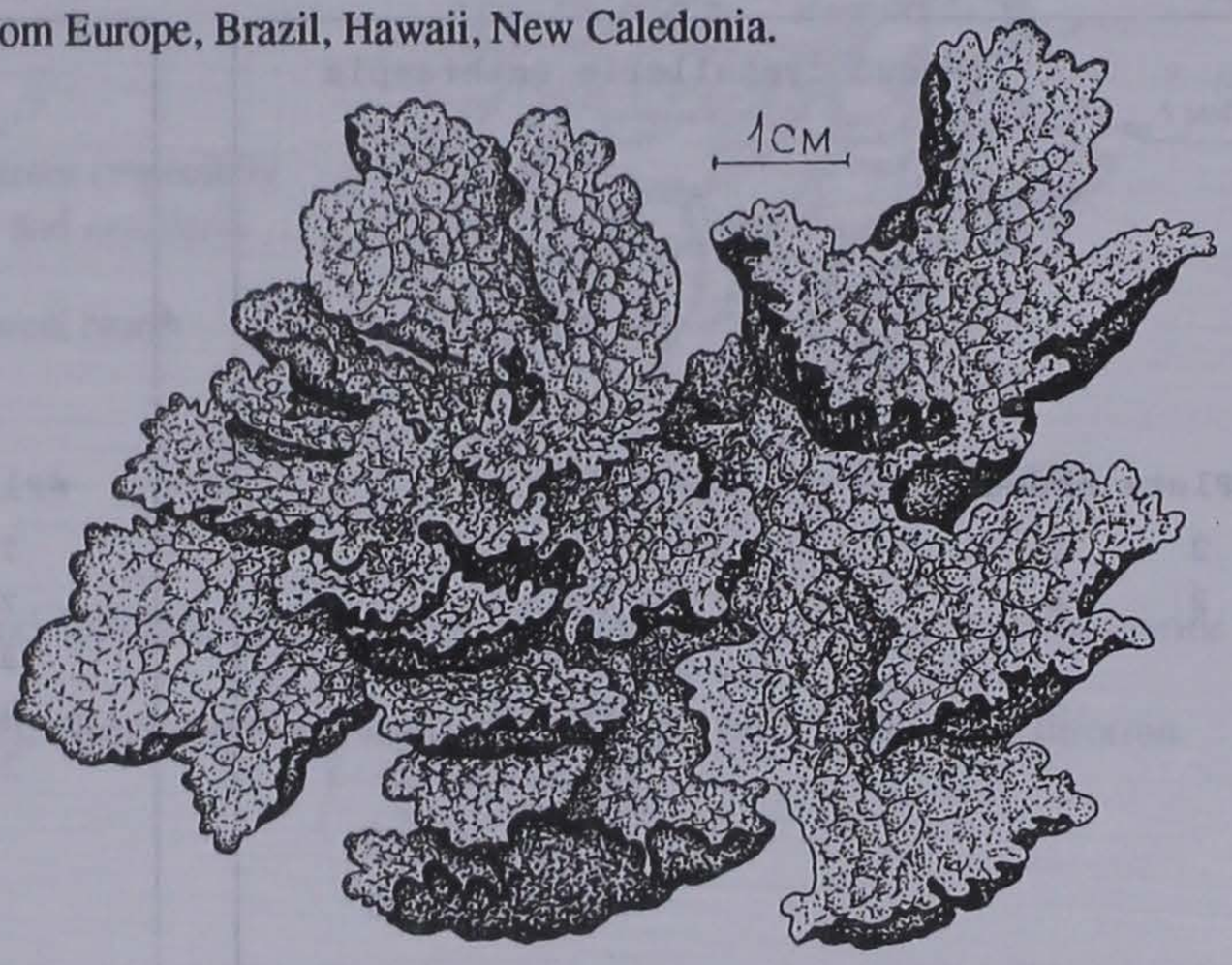


Platismatia lacunosa

Platismatia norvegica (Lynge) Culb. & C. Culb.
Abundance: 121, abundant.
Habitat: over branches of all conifers and occasionally on *Alnus* in most forest types from low elevations to (infrequently).
Abundance in North America/Range: frequent; oceanic species from coastal western North America (Alaska to Oregon), Newfoundland and northern Europe.

Polychidium dendriscum (Nyl.) Henssen or **cf. contortum** Henssen
Abundance: 1, ?
Habitat: on bark of conifers and deciduous shrubs.
Abundance in North America/Range: rare; known from Europe, Brazil, Hawaii, New Caledonia.

Porpidia carlottiana Gowan
Abundance: 1, ?
Habitat: on rock. Usually exposed, almost always along waterways in mountains or on seashore rocks (Gowan, 1989).
Abundance in North America/Range: Pacific Northwest North American endemic, common to hypermaritime localities on the west coast from Oregon to south central Alaska.
Notes: Very similar to the European species, *P. glaucophaea*.



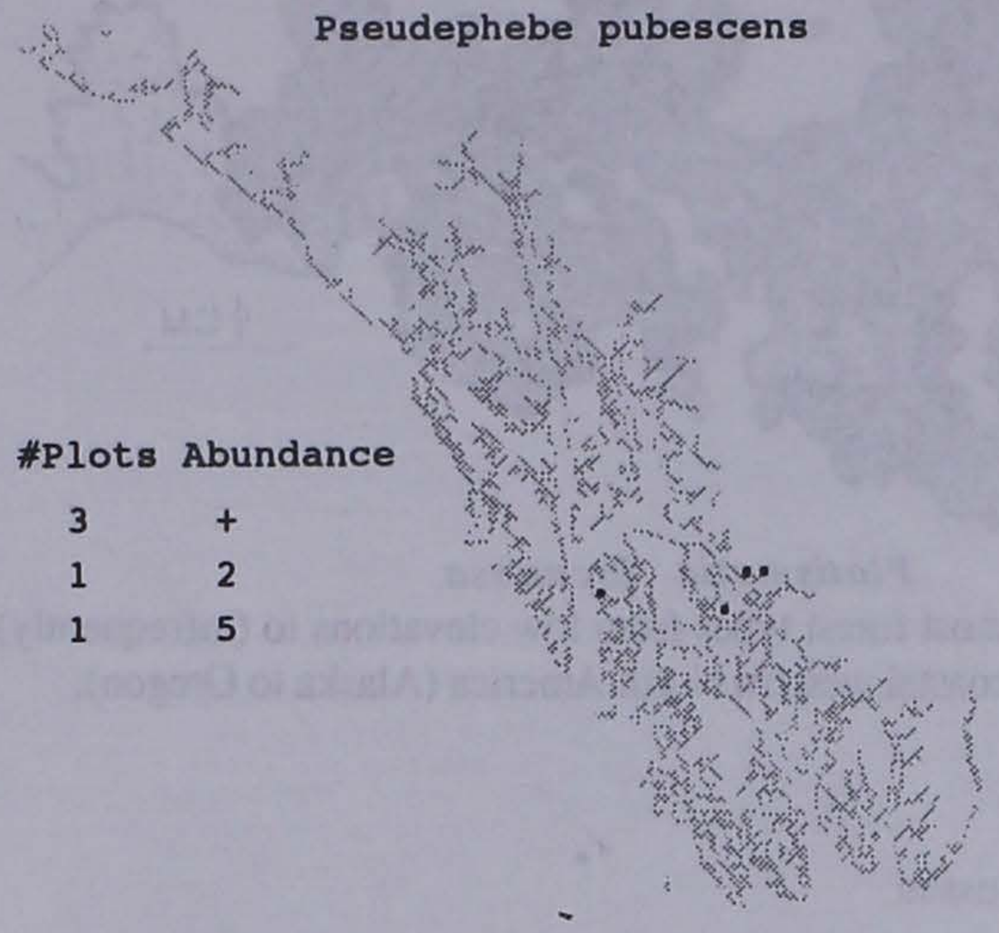
Platismatia norvegica

Porpidia flavicunda (Ach.) Gowan
Abundance: 8, common
Habitat: on rock from low elevations to alpine. the subalpine.
Abundance in North America/Range: throughout the North American Arctic to the northern boreal zone; circumpolar arctic-alpine.

Porpidia flavocaerulescens (Hornem.) Hertel & Schwab
Abundance: 2, ?
Habitat: on rock.
Abundance in North America/Range: arctic-alpine throughout Europe and North America, also known from Greenland and the Himalayas; probably circumpolar.
Notes: collected during a joint National Park Service/U. S. Forest Service botanical survey of Klondike Gold Rush Park in 1993.

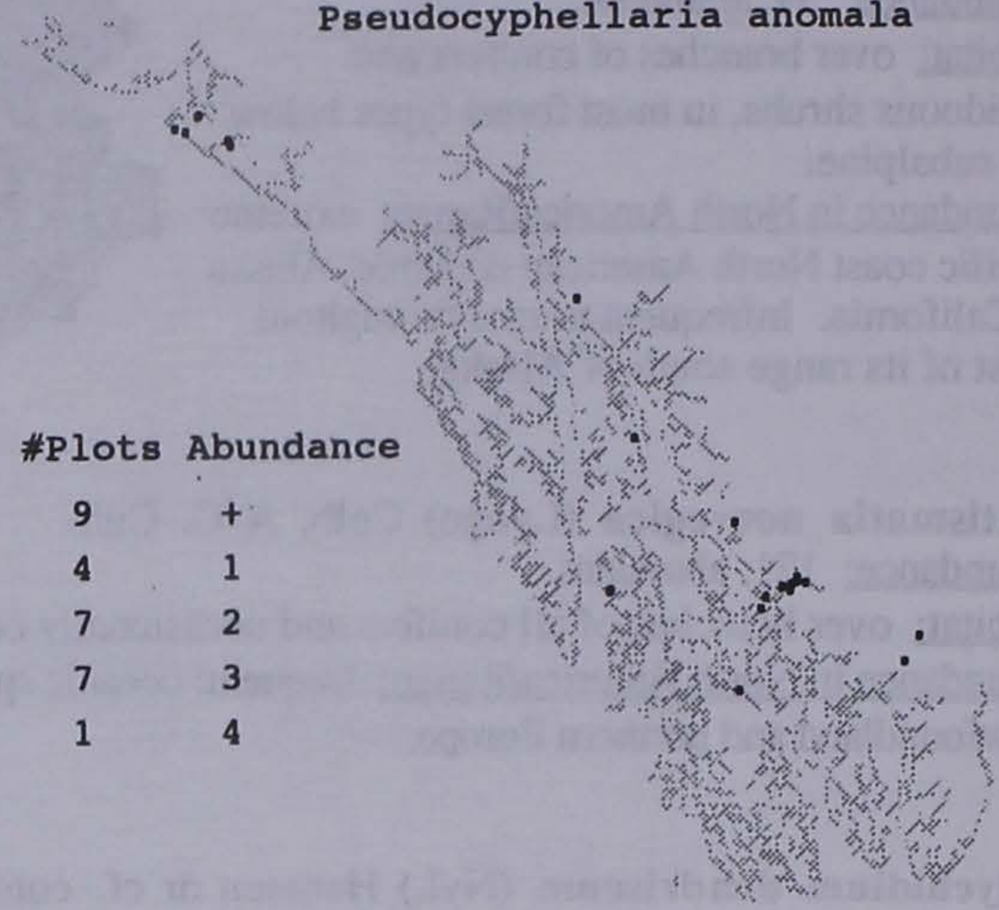
Porpidia speirea (Ach.) Krempelh.
Abundance: 1, ?
Habitat: on rock in the alpine.
Abundance in North America/Range: common; circumpolar arctic-alpine to boreal, known from Europe, North America, Asia and Australia.

Pseudephebe pubescens



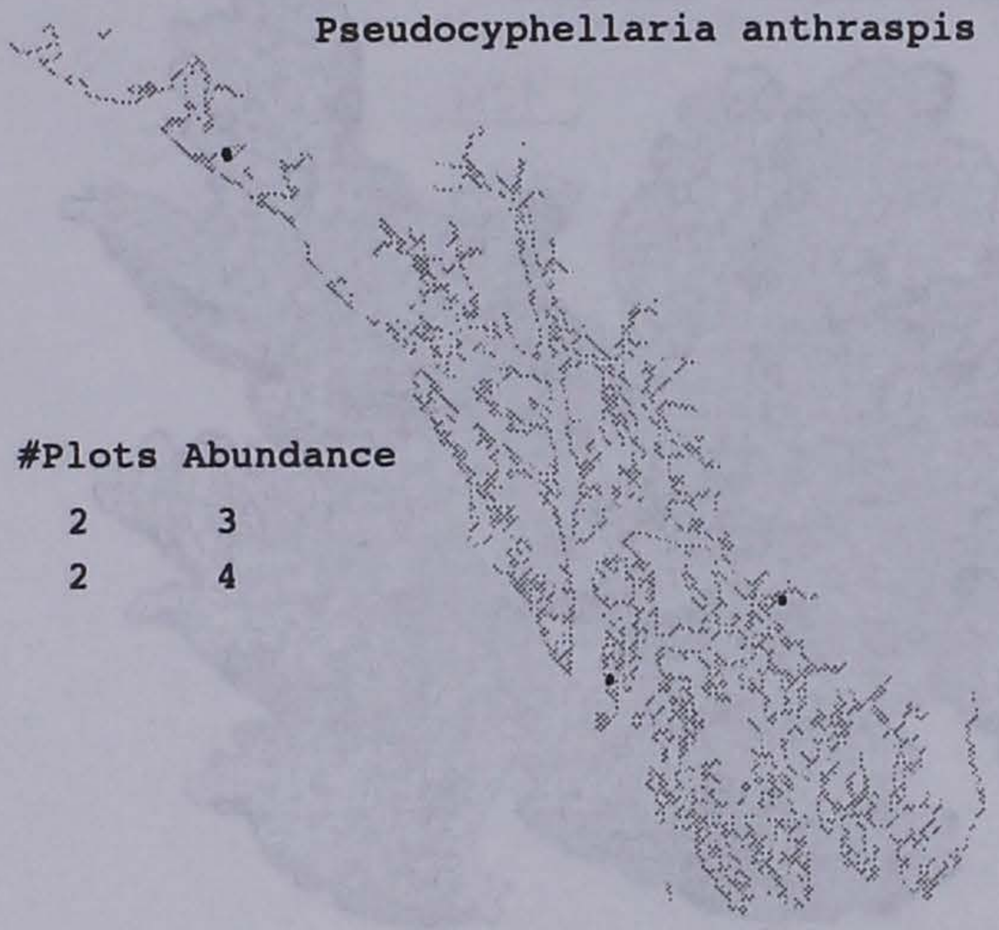
#Plots	Abundance
3	+
1	2
1	5

Pseudocyphellaria anomala



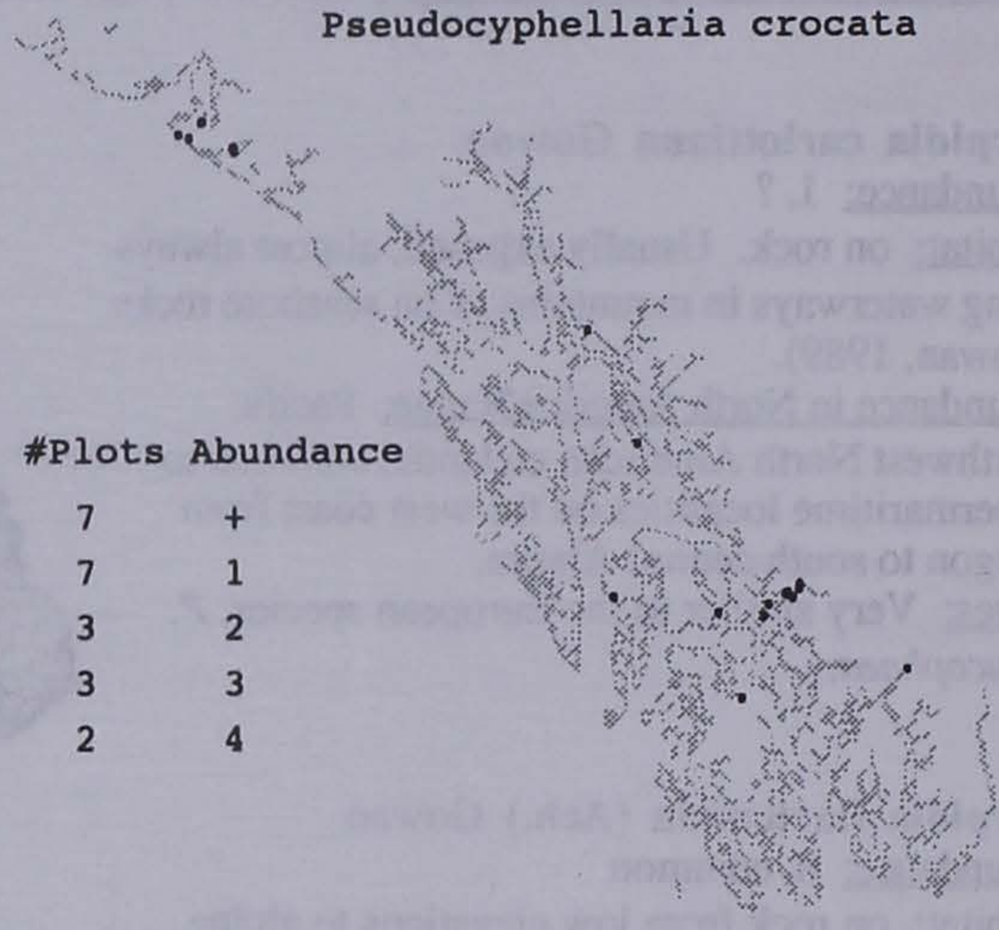
#Plots	Abundance
9	+
4	1
7	2
7	3
1	4

Pseudocyphellaria anthraspis



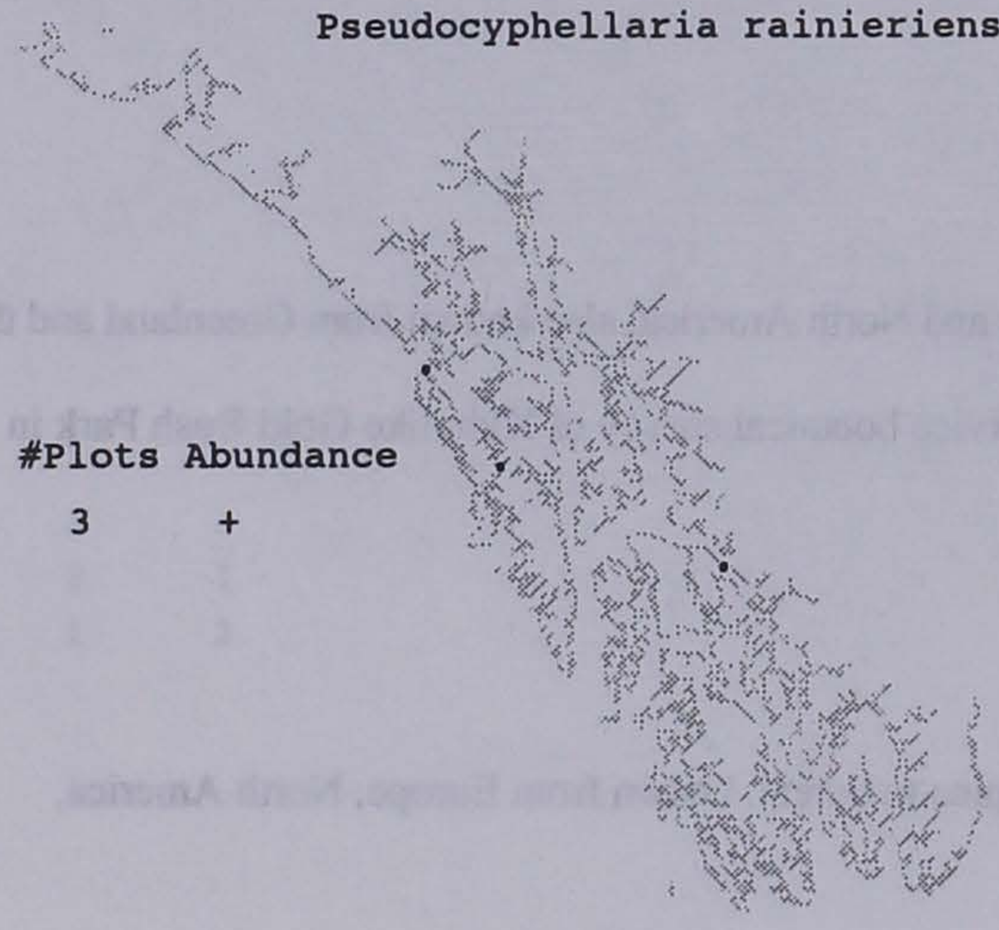
#Plots	Abundance
2	3
2	4

Pseudocyphellaria crocata



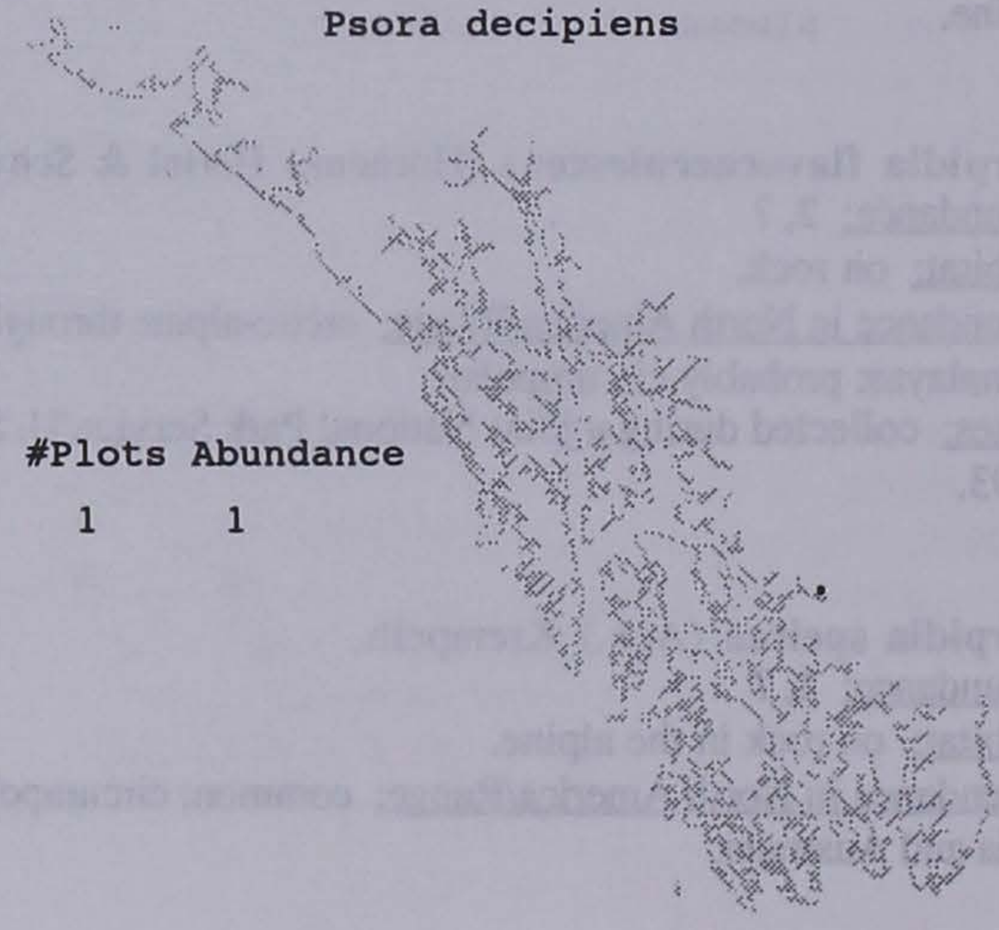
#Plots	Abundance
7	+
7	1
3	2
3	3
2	4

Pseudocyphellaria rainieriensis



#Plots	Abundance
3	+

Psora decipiens

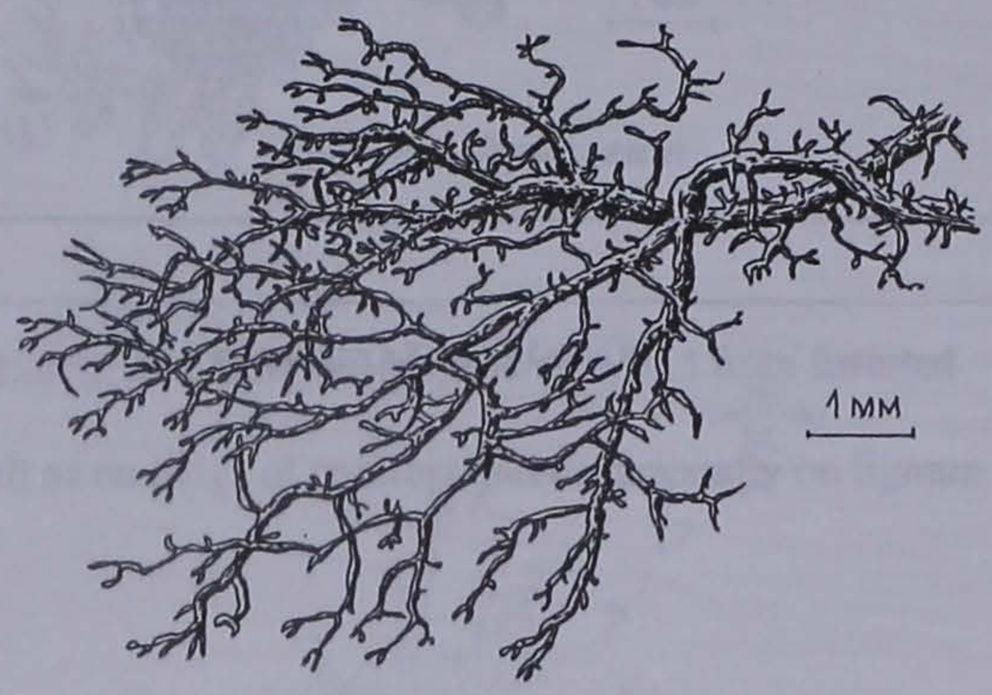


#Plots	Abundance
1	1

Porpidia thomsonii Gowan
Abundance: 5, common?
Habitat: on rock from sea level to subalpine and alpine.
Abundance in North America/Range: recently described species endemic to arctic-alpine North America (Gowan, 1989). Centers of population are the west coast, Rocky Mountains and Arctic. Absent in the east with rare exceptions in northern Michigan and the Temagami area of Ontario.

Pseudephebe minuscula (Nyl. ex Arnold) Brodo & D. Hawksw.
Abundance: 3, common?
Habitat: over rock and soil in the alpine but also at low elevations near glacier termini.
Abundance in North America/Range: common; circumpolar arctic-alpine/subalpine.

Pseudephebe pubescens (L.) Choisy
Abundance: 6, common.
Habitat: over rock especially in the alpine but also at low elevations near glacier termini.
Abundance in North America/Range: common; circumpolar arctic-alpine.



Pseudephebe pubescens

Pseudocyphellaria anomala Brodo & Ahti
Abundance: 27, common.
Habitat: over branches of coniferous and deciduous trees (especially *Picea* and *Populus*) and shrubs along marine beaches and mainland rivers.
Abundance in North America/Range: Pacific Northwest North American endemic, from Alaska to California.

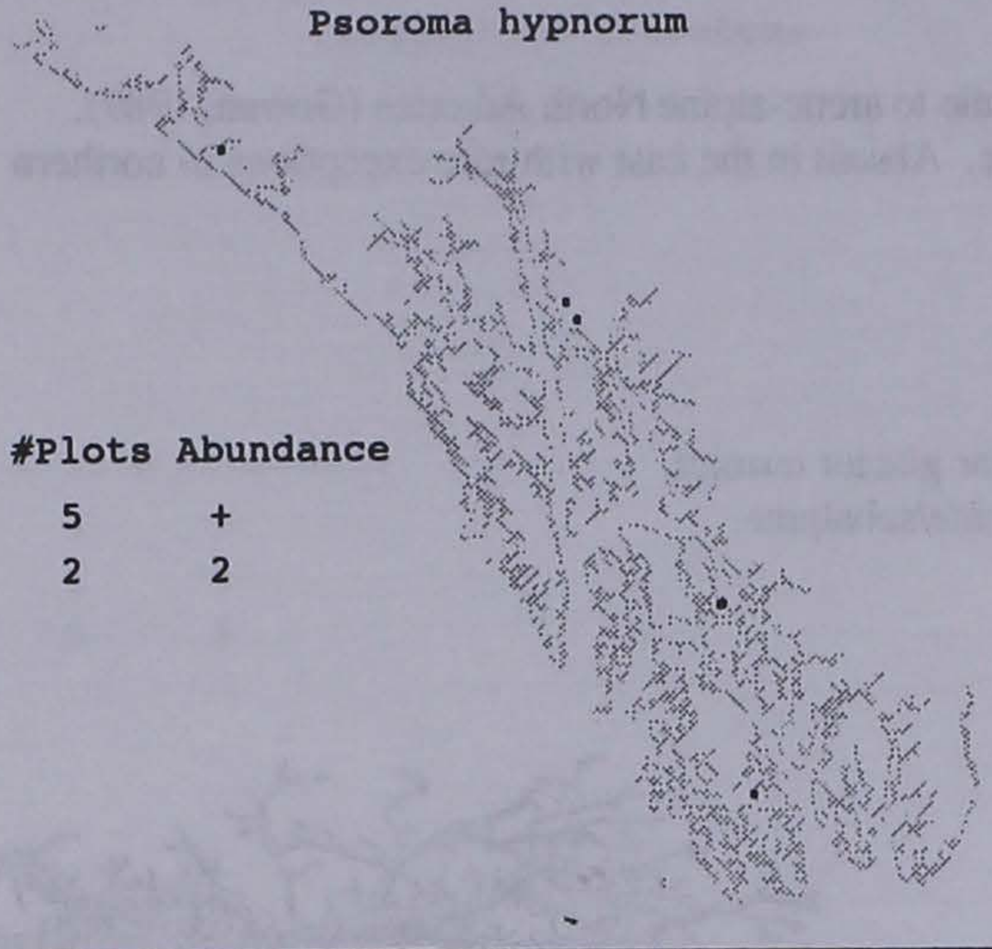
Pseudocyphellaria anthraspis (Ach.) Magn.
Abundance: 4, infrequent.
Habitat: over branches of coniferous trees (*Picea*) and deciduous shrubs (*Salix, Alnus, Vaccinium*) along rivers or marine beaches.
Abundance in North America/Range: frequent; Pacific Northwest North American endemic, from Alaska to California.

Pseudocyphellaria crocata (L.) Vainio
Abundance: 21, common.
Habitat: over branches of coniferous and deciduous trees and shrubs along rivers or marine beaches. Especially common on *Picea* and *Alnus*, but also on *Populus, Malus, Tsuga* and others.
Abundance in North America/Range: incompletely circumpolar, almost cosmopolitan distribution. Alaska to Oregon, Pacific Lakes region and Appalachians in North America.

Pseudocyphellaria rainierensis Imsh.
Abundance: 2, rare.
Habitat: over coniferous trees (*Picea)* and deciduous shrubs (*Malus*) along salt water beaches.
Abundance in North America/Range: rare throughout its range; endemic to the Pacific Northwest of North America, from Oregon to Alaska.
Notes: northern range extension. This lichen is strongly associated with old growth habitats.

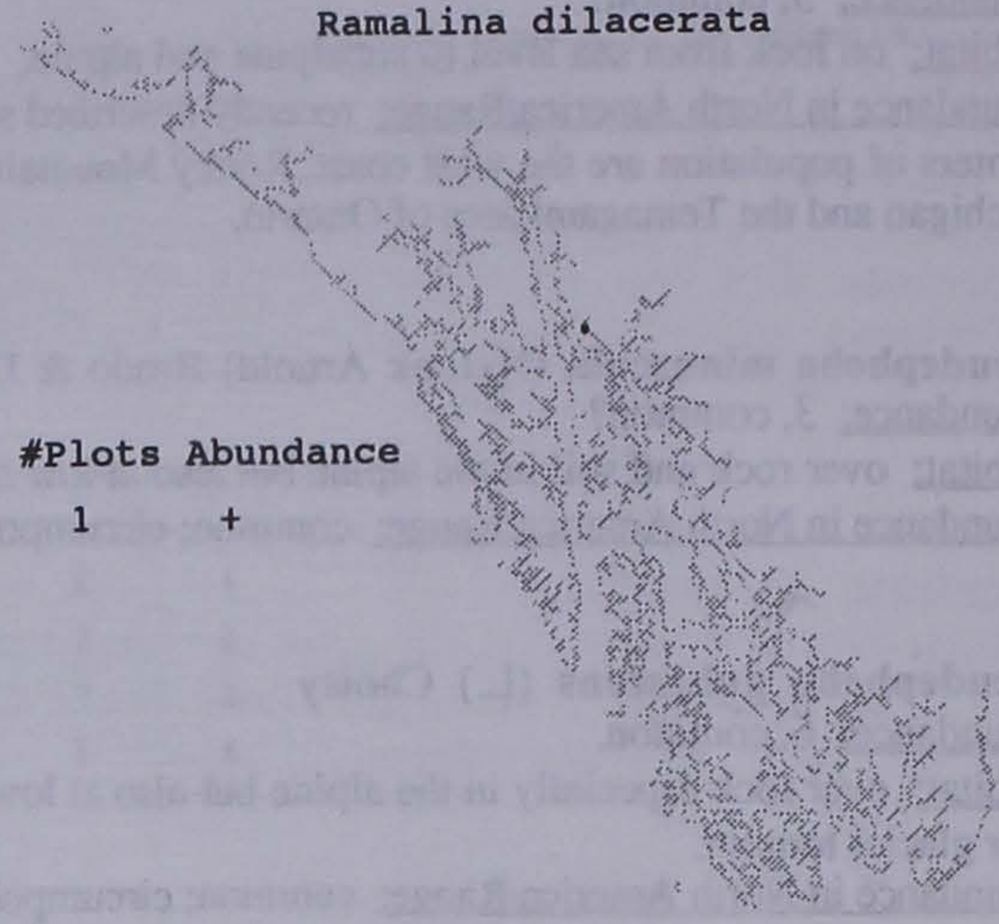
Psora decipiens (Hedwig) Hoffm.
Abundance: 1, ?
Habitat: single collection from soil in mainland high elevation alpine.
Abundance in North America/Range: cosmopolitan.
Notes: expected on calcareous soils, chalk, shell-sand or mica schist soils in open habitats (Purvis, et al., 1992).

Psoroma hypnorum



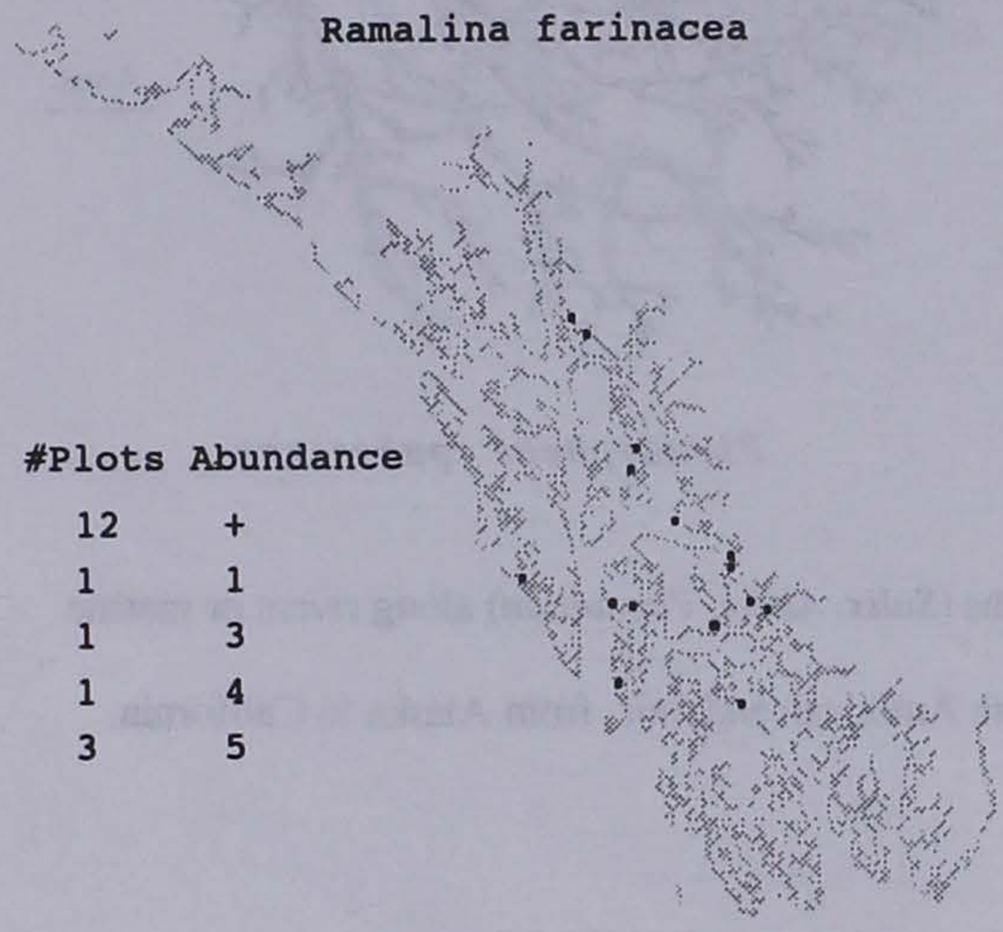
#Plots	Abundance
5	+
2	2

Ramalina dilacerata



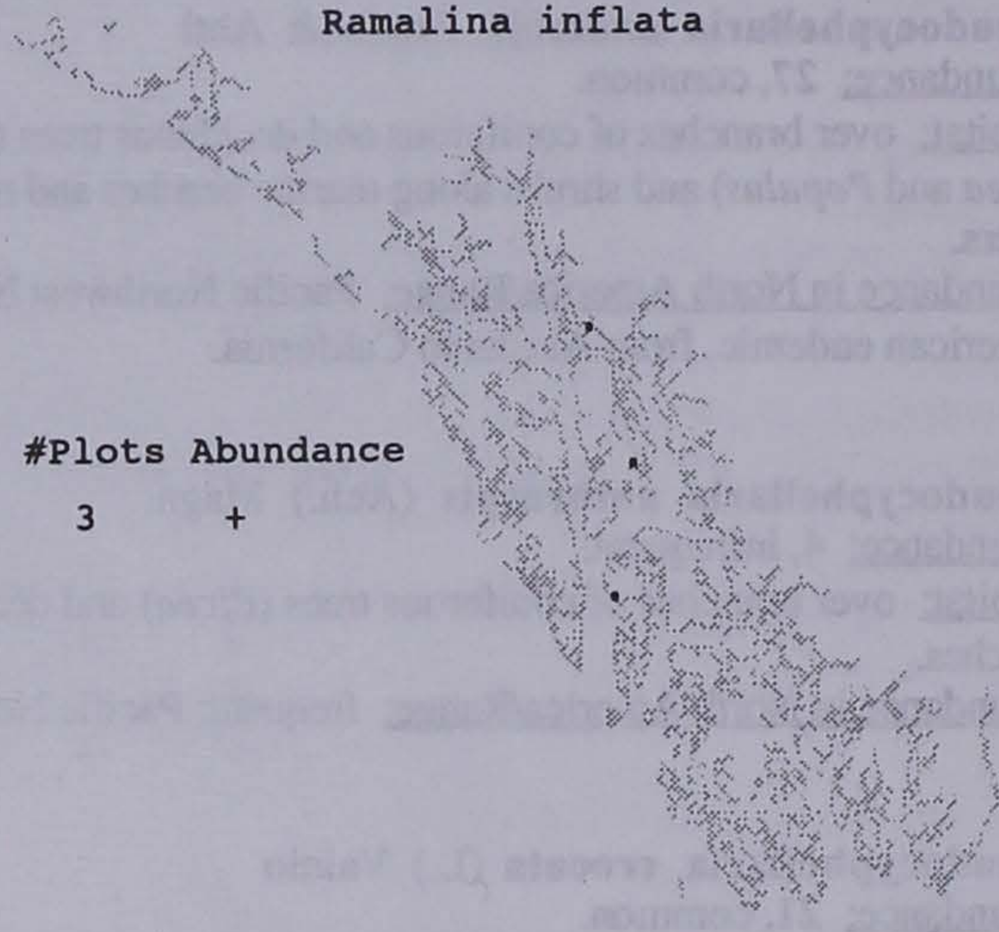
#Plots	Abundance
1	+

Ramalina farinacea



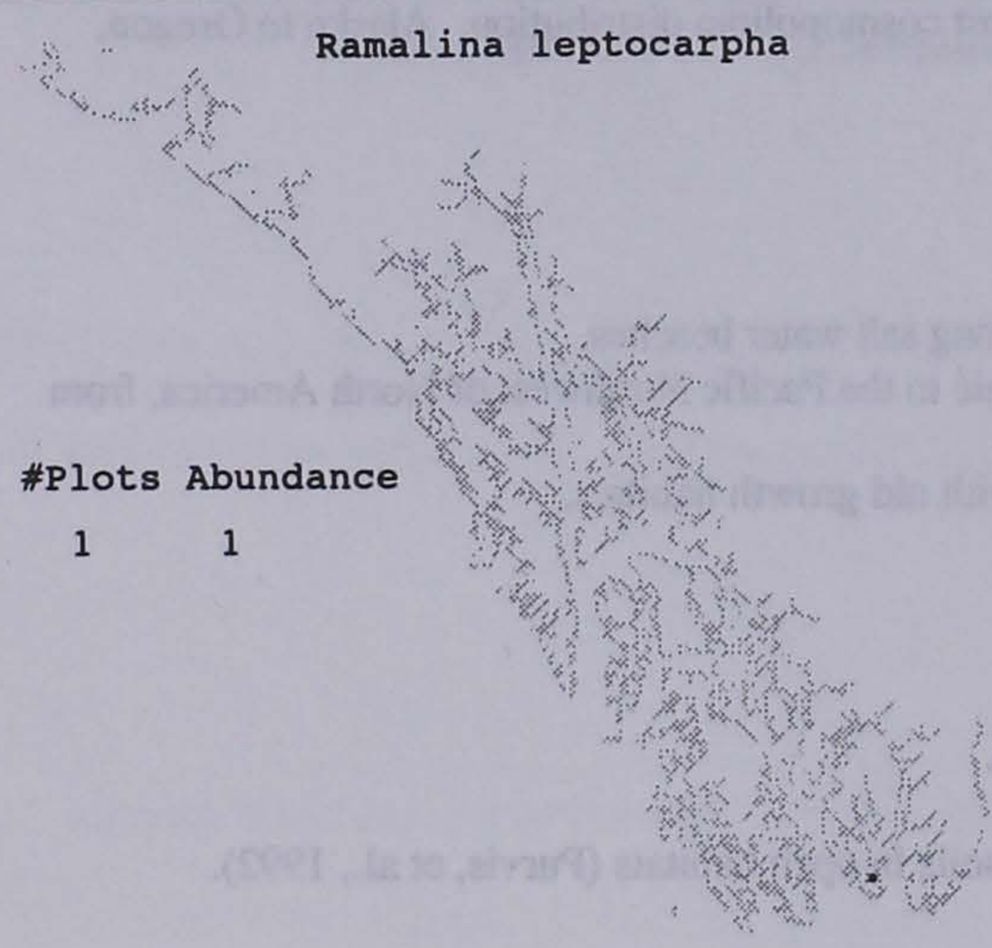
#Plots	Abundance
12	+
1	1
1	3
1	4
3	5

Ramalina inflata



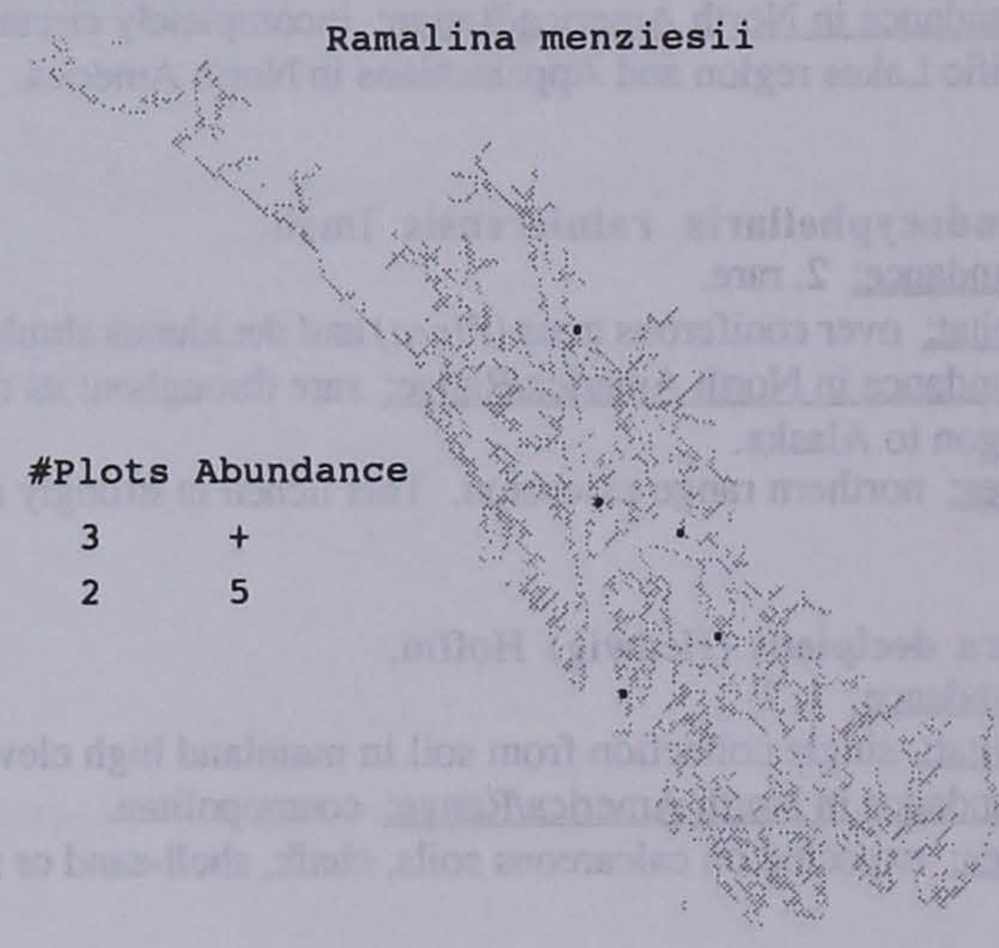
#Plots	Abundance
3	+

Ramalina leptocarpha



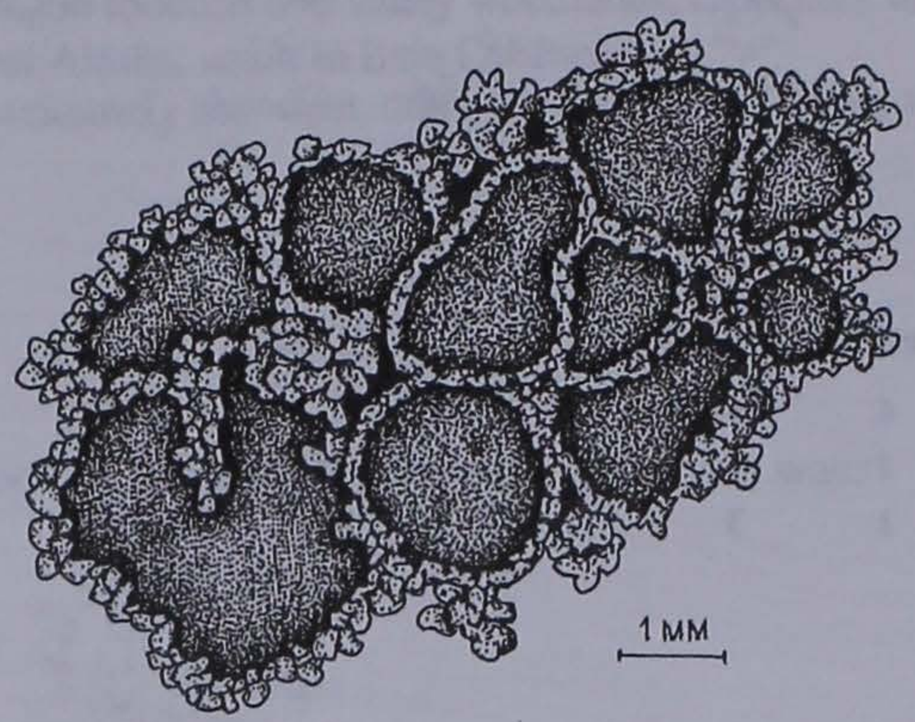
#Plots	Abundance
1	1

Ramalina menziesii



#Plots	Abundance
3	+
2	5

Psoroma hypnorum (Vahl) S. F. Gray
Abundance: 8, common.
Habitat: on rock, soil or bark (*Tsuga, Salix, Vaccinium*) in open sites; low elevations to the subalpine and alpine. At lower elevations, usually near fresh or saltwater beaches.
Abundance in North America/Range: common; Alaska to New Mexico in North America. Known also from South America, Georgia, Asia, southeast Australia and New Zealand.



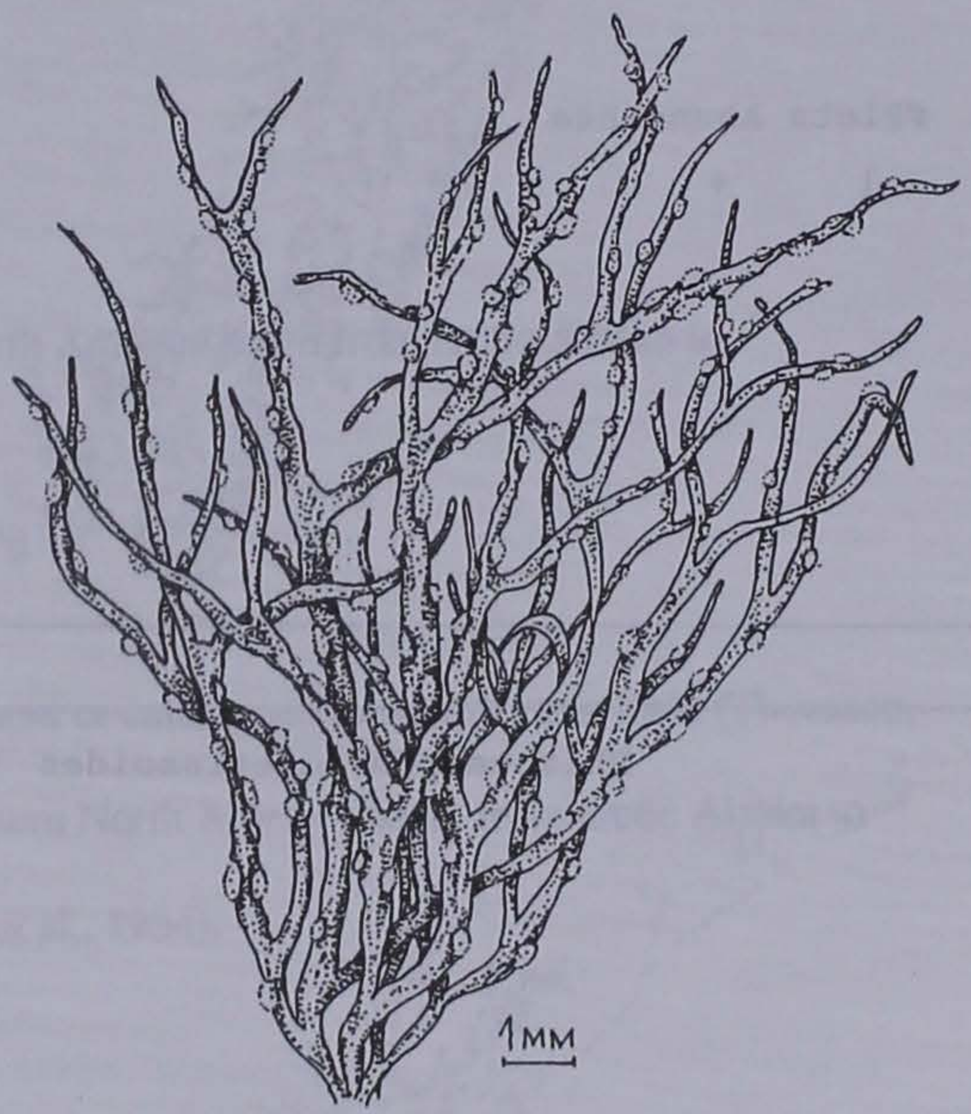
Psoroma hypnorum

Ramalina cf. almquistii Vainio
Abundance: 0, infrequent.
Abundance in North America/Range: infrequent, amphi-Beringian.
Notes: collected by R. O'Clair (University of Alaska, Southeast). If more collections can be made, this would be a significant southern range extension.

Ramalina dilacerata (Hoffm.) Hoffm.
SO_2 Sensitivity: intermediate, 34-52/52-78.
Abundance: 1, infrequent.
Habitat: one collection from *Alnus rubra* along the Mendenhall River.
Abundance in North America/Range: widespread; known from northern Europe, the central European alps, and from forested areas of North America and Russia.
Notes: expected from deciduous trees, mainly *Alnus* and *Populus*, as well as on twigs of conifers and occasionally on lignum (Krog and James, 1977).

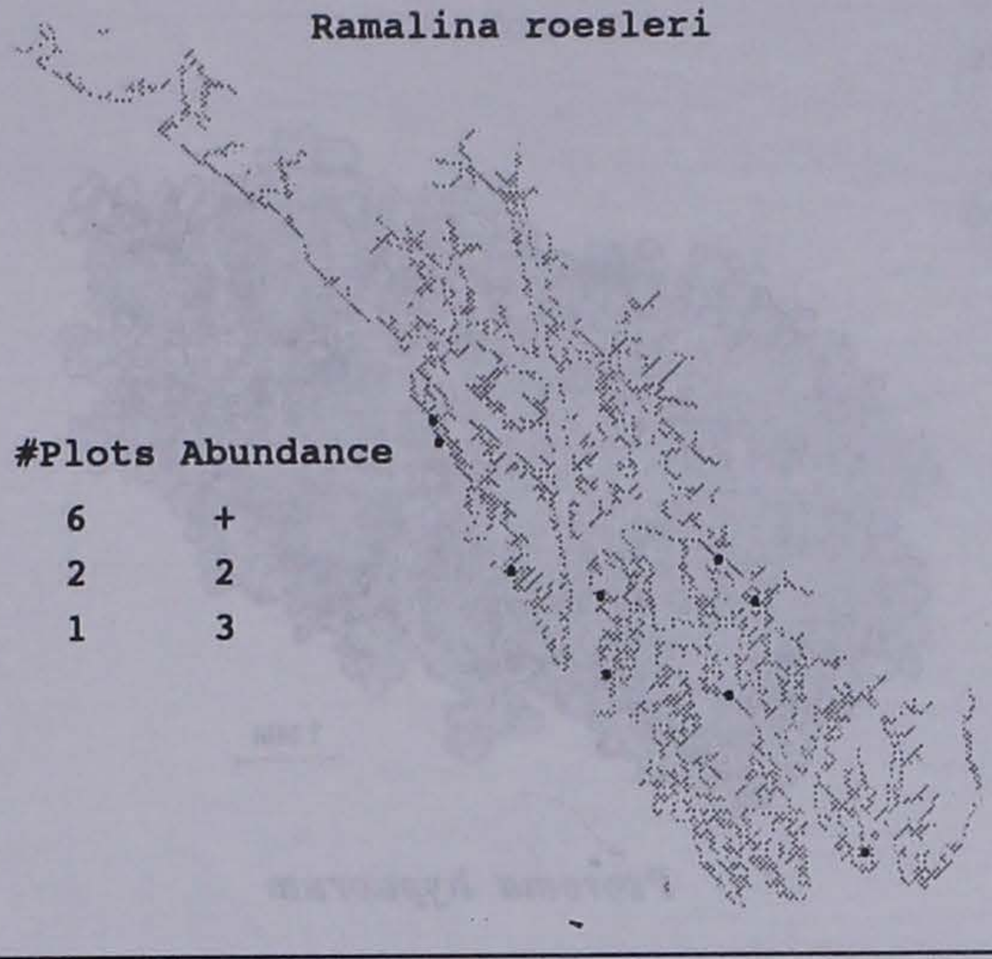
Ramalina farinacea (L.) Ach.
Sensitivity: 5-9.2.
SO_2 Sensitivity: sensitive, 60/70.
Abundance: 17, common.
Habitat: on trunks and branches of spruce and deciduous shrubs (*Alnus, Malus*) along salt water beaches; once along the Mendenhall River.
Abundance in North America/Range: common and widespread in North America and Europe.

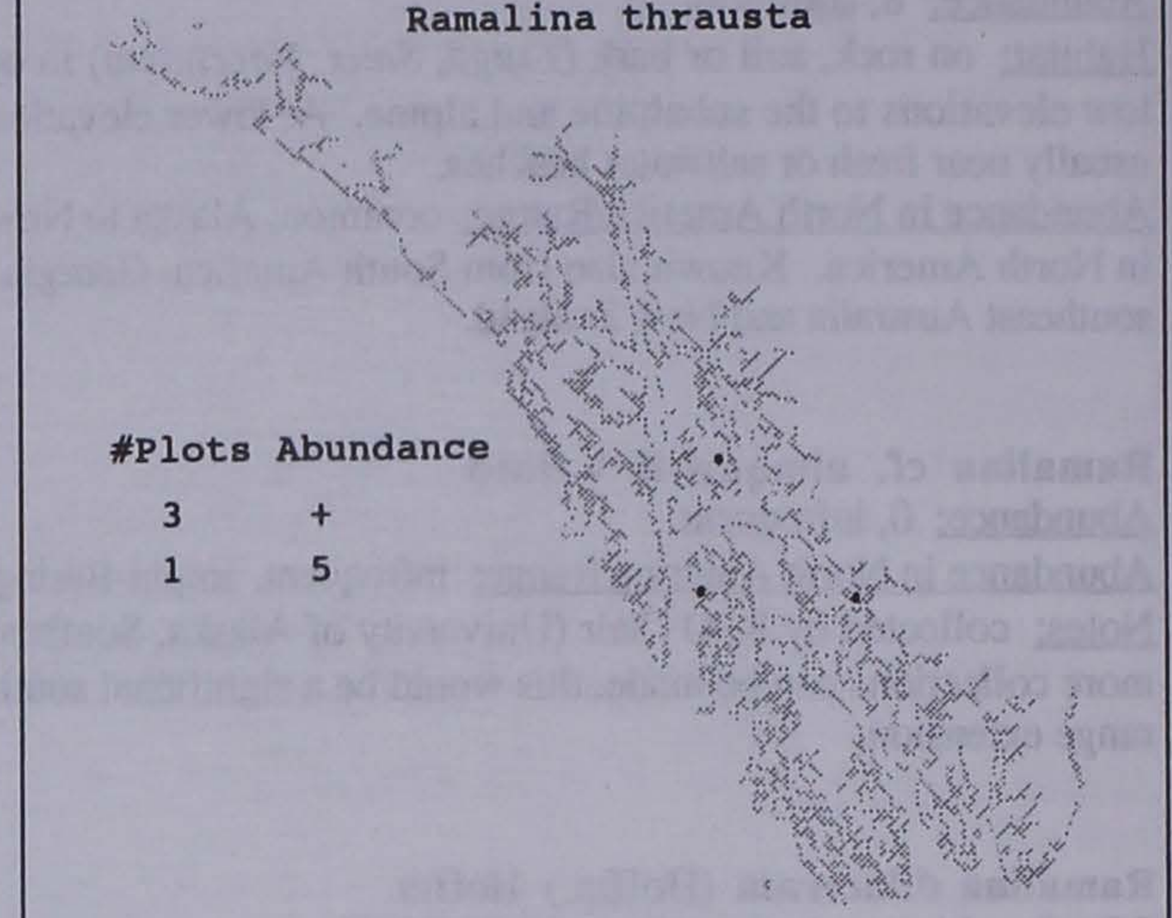
Ramalina inflata (J. D. Hook & Taylor) J. D. Hook & Taylor
Abundance: 4, infrequent.
Habitat: on trunks and branches of *Alnus* along fresh and salt water beaches; at low elevations.
Abundance in North America/Range: infrequent, oceanic species of the North American Pacific coast (central California to British Columbia, reaching the northern edge of its range in southeast Alaska). Also known from the Southern Hemisphere and the West Indies (Krog and James, 1977).

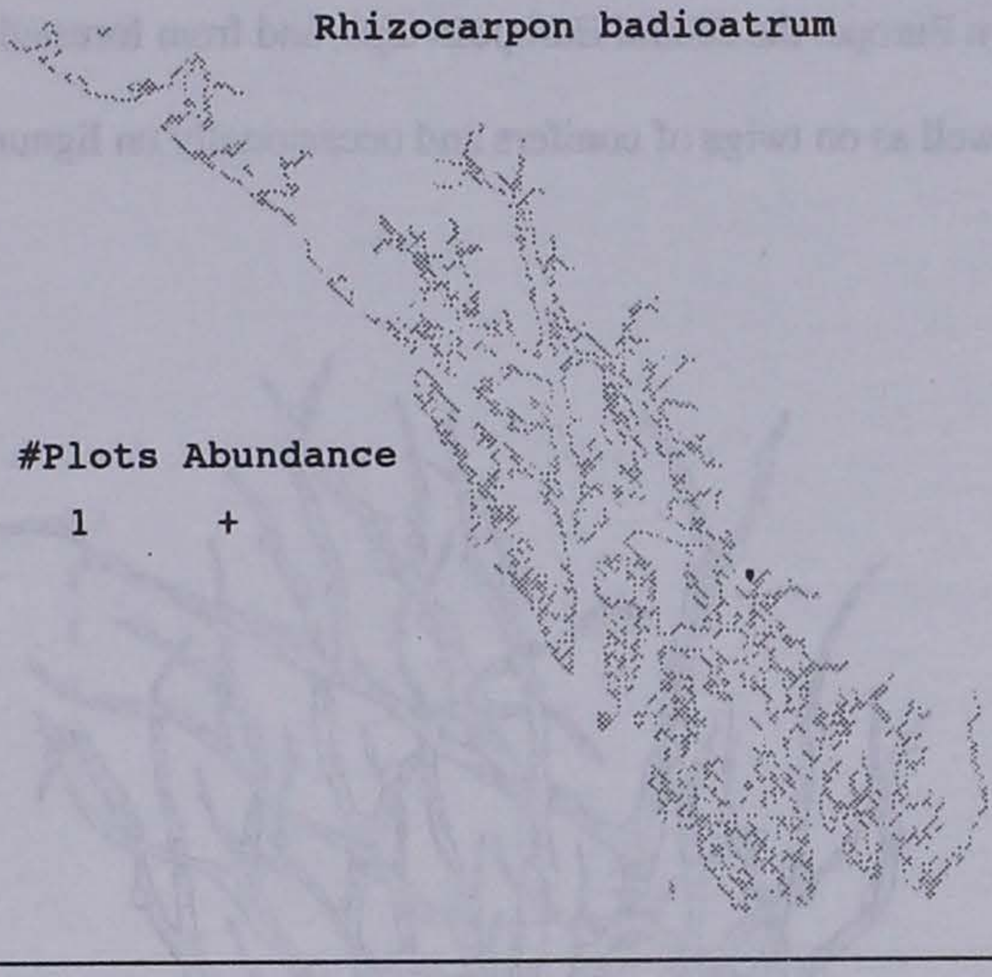


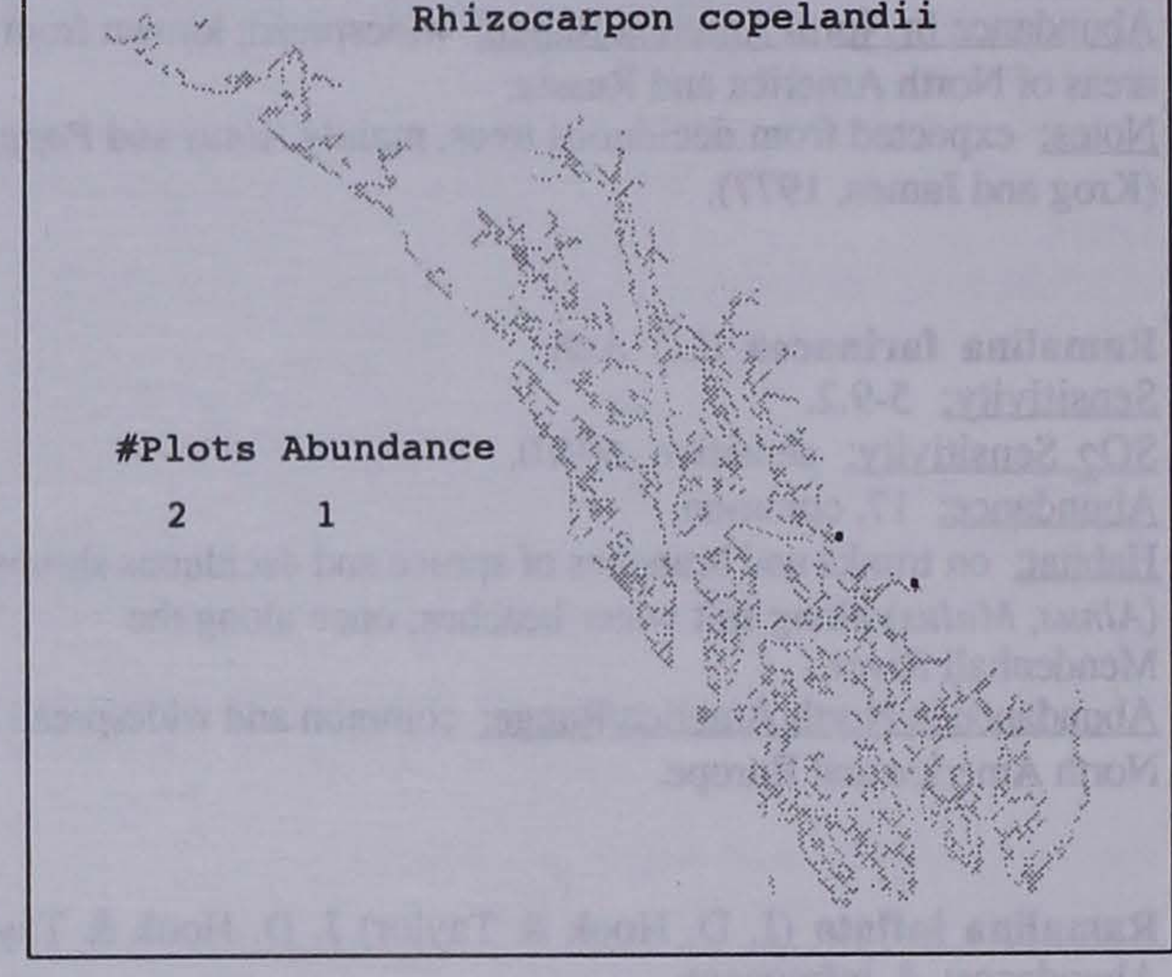
Ramalina farinacea

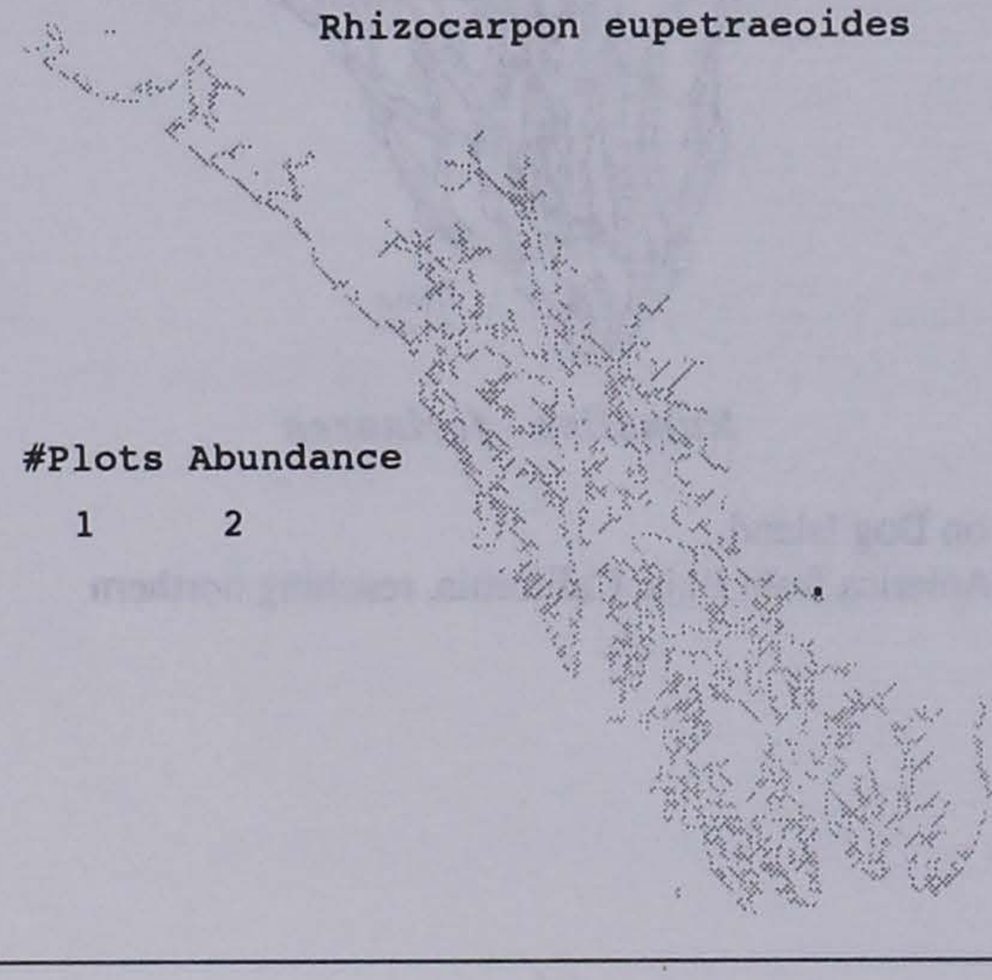
Ramalina cf. leptocarpha
Abundance: 1, ?
Habitat: single collection from *Menziesia ferruginea* along the beach on Dog Island.
Abundance in North America/Range: common; coastal western North America from Baja, California, reaching northern extent of its range in British Columbia (or perhaps southeast Alaska).

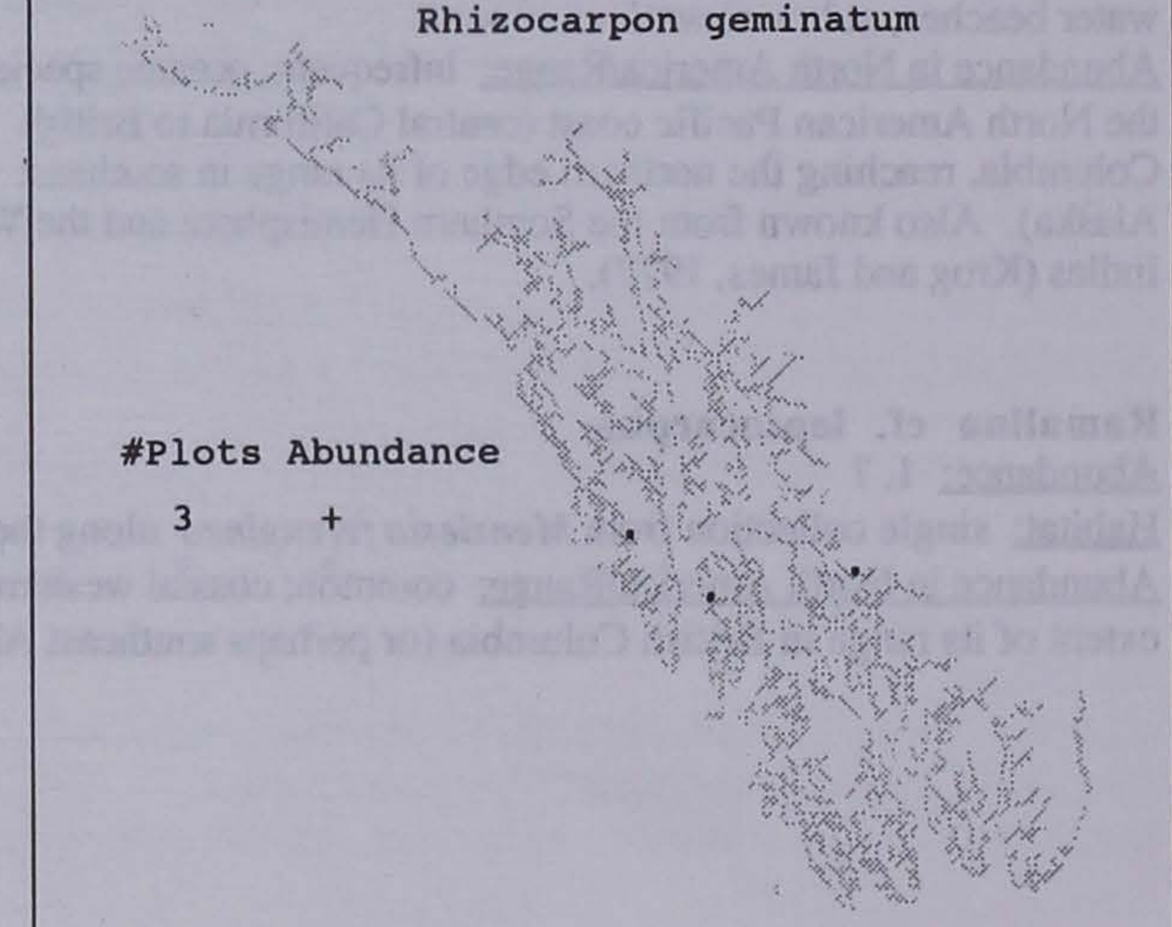

Ramalina roesleri
#Plots Abundance
6 +
2 2
1 3


Ramalina thrausta
#Plots Abundance
3 +
1 5


Rhizocarpon badioatrum
#Plots Abundance
1 +


Rhizocarpon copelandii
#Plots Abundance
2 1


Rhizocarpon eupetraeoides
#Plots Abundance
1 2


Rhizocarpon geminatum
#Plots Abundance
3 +

Ramalina menziesii Taylor
Abundance: 4, infrequent.
Habitat: pendent from spruce branches along salt water beaches, especially on small marine islands.
Abundance in North America/Range: very common in California and Oregon foothills and valley woodlands, especially those facing the Pacific Ocean, reaching northern extent of its range in southeast Alaska; south to Baja California.
Notes: although this lichen occurs infrequently, when it does occur it is extremely abundant, other *Ramalina* and *Usneas* may be present, and *Alectoria* will be absent.

Ramalina roesleri (Hochst. ex Schaerer) Hue
Sensitivity: 8.
Abundance: 9, common.
Habitat: on bark of tree trunks and branches (especially *Picea* but also other conifers, *Alnus* and *Salix*) along salt water beaches.
Abundance in North America/Range: common; circumpolar boreal.

Ramalina thrausta (Ach.) Nyl.
Sensitivity: 9.
Abundance: 4, common.
Habitat: on bark of tree trunks and branches, especially *Picea*, along salt water beaches.
Abundance in North America/Range: common; circumpolar boreal.

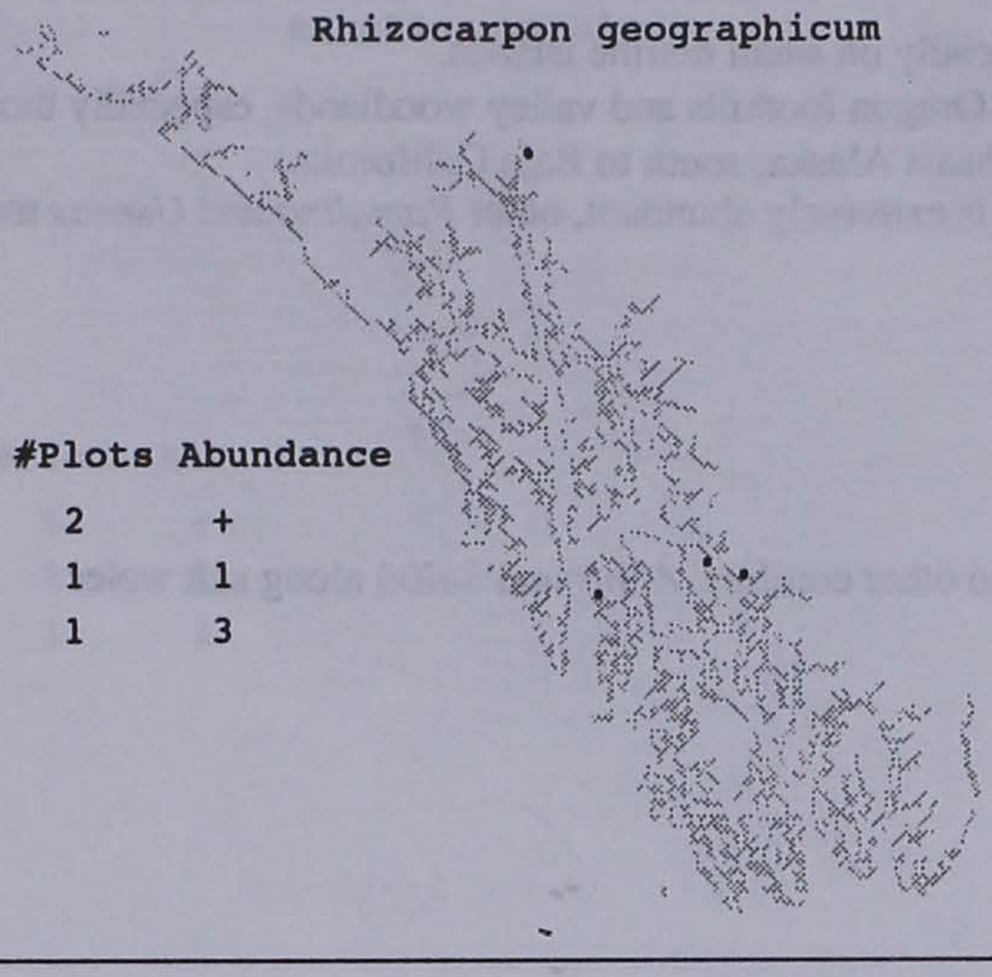
Rhizocarpon badioatrum (Flörke ex Sprengel) Th. Fr.
Abundance: 1,?
Habitat: on rock in the alpine.
Abundance in North America/Range: common; circumpolar arctic-alpine.
Notes: normally on acid rocks (Thomson, 1979).

Rhizocarpon copelandii (Körber) Th. Fr.
Abundance: 2, ?
Habitat: on rock.
Abundance in North America/Range: circumpolar, arctic; in western North America south from arctic Alaska to Saskatchewan (Thomson, 1979).
Notes: normally on acid rocks (Thomson, 1979).

Rhizocarpon disporum (Naeg. ex Hepp) Müll. Arg.
Abundance: 0, ?
Habitat: on rock above the trimline of the Taku Glacier. Occurring on acid or calcareous rocks in strong light (Thomson, 1979).
Abundance in North America/Range: circumpolar, arctic-alpine. In western North America south from arctic Alaska to Arizona (Thomson, 1979).
Notes: reported from the Taku Glacier in the Juneau Ice Field (Heusser et al., 1954).

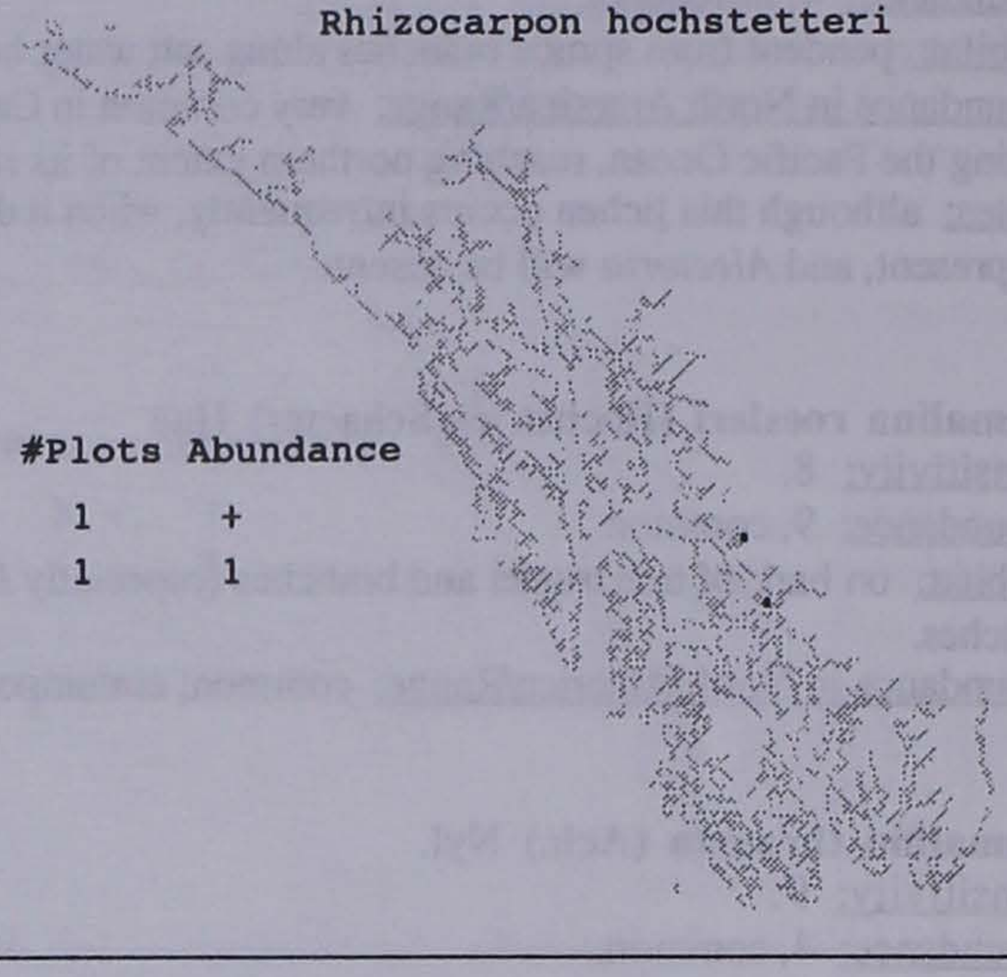
Rhizocarpon eupetraeoides (Nyl.) Blomb. & Forss.
Abundance: 1, ?
Habitat: single collection on rock in mainland high elevation alpine (Elbow Mtn.). Normally on acid rocks (Thomson, 1967).
Abundance in North America/Range: circumpolar arctic-alpine, in western North America known only from Alaska and Northwest Territories (Thomson, 1967).

Rhizocarpon geographicum



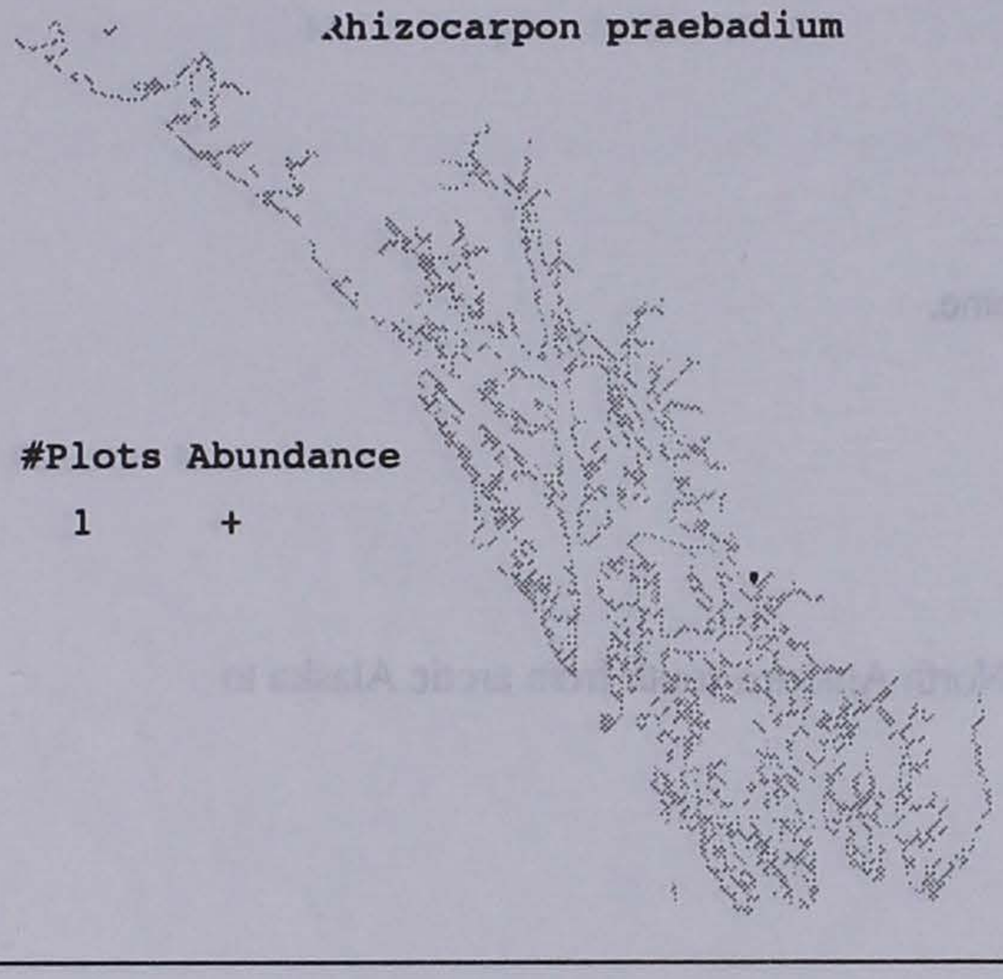
#Plots	Abundance
2	+
1	1
1	3

Rhizocarpon hochstetteri



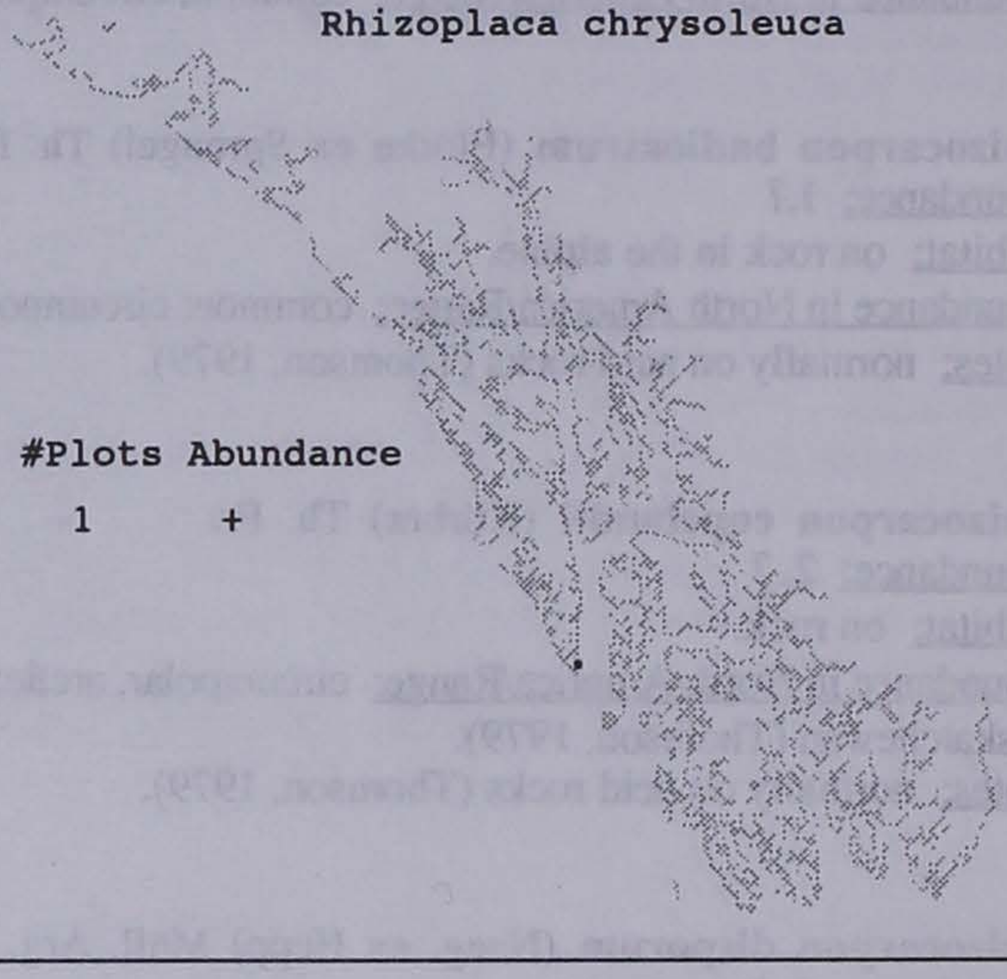
#Plots	Abundance
1	+
1	1

Rhizocarpon praebadium



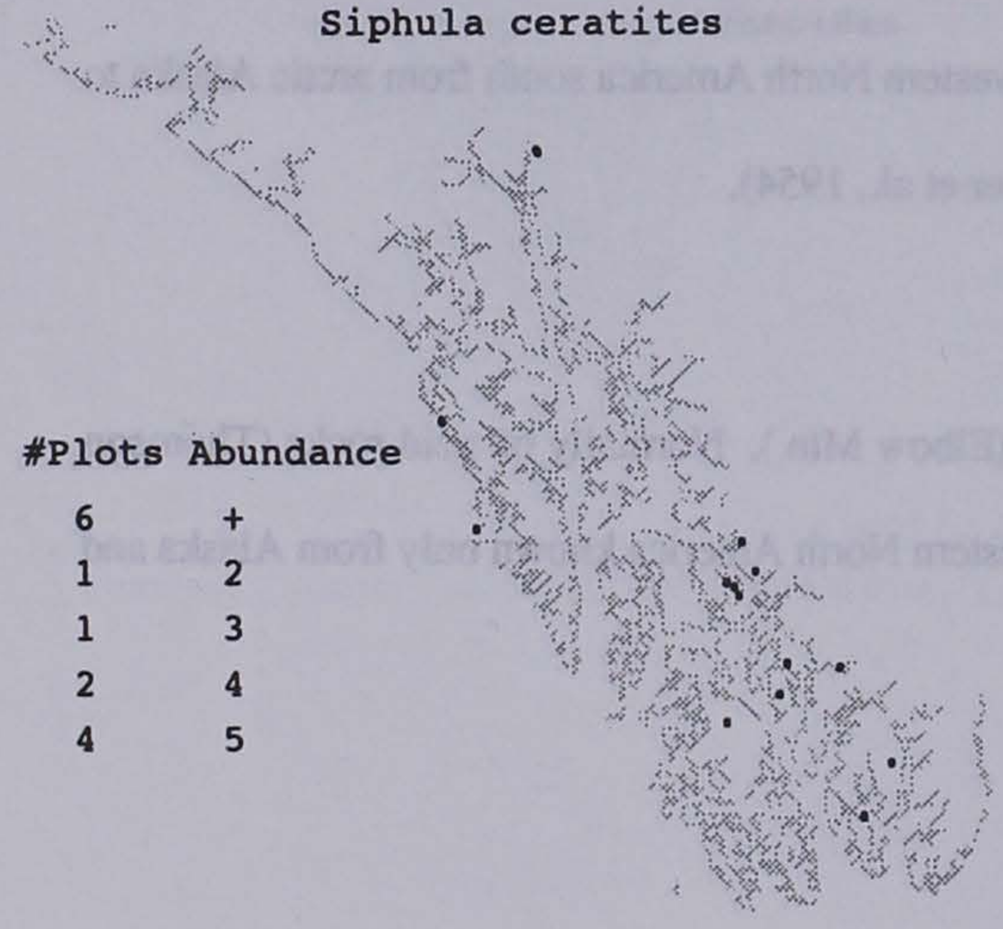
#Plots	Abundance
1	+

Rhizoplaca chrysoleuca



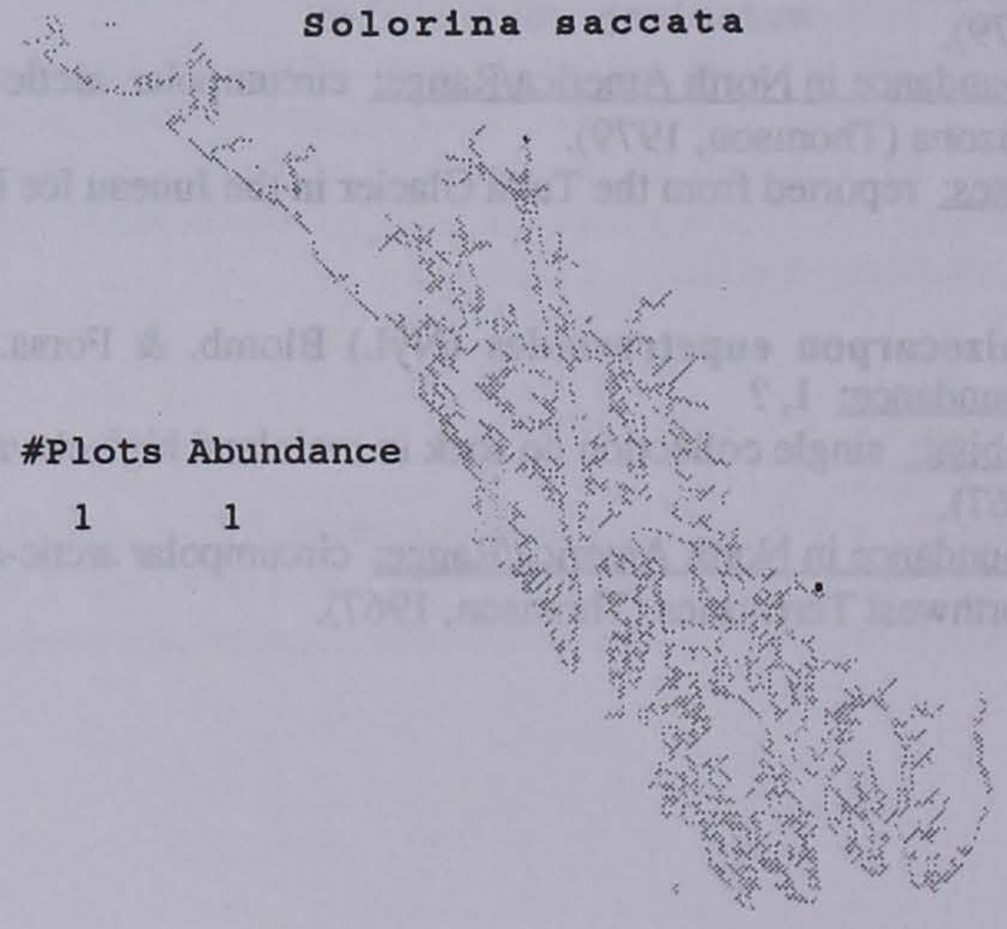
#Plots	Abundance
1	+

Siphula ceratites



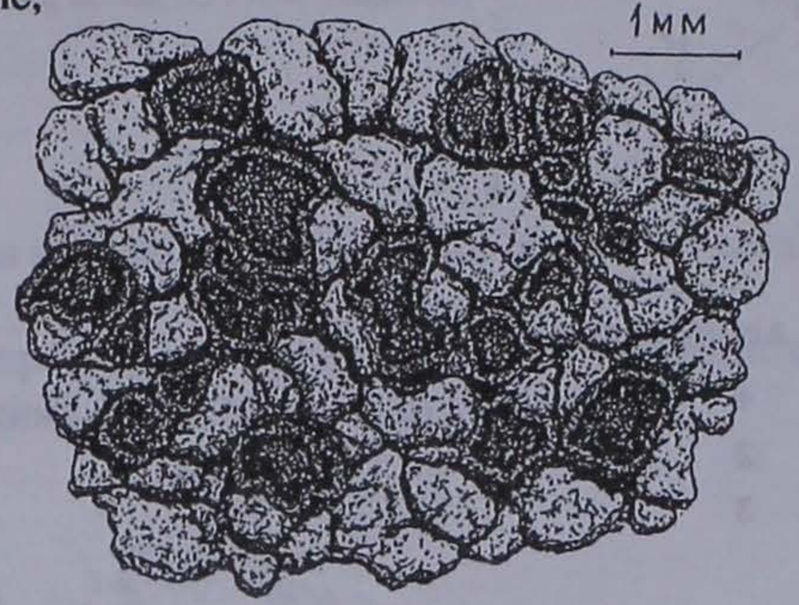
#Plots	Abundance
6	+
1	2
1	3
2	4
4	5

Solorina saccata



#Plots	Abundance
1	1

Rhizocarpon geminatum Körber
Abundance: 3, common.
Habitat: on rock, low elevations to the alpine.
Abundance in North America/Range: abundant; circumpolar arctic alpine, Alaska to California.



Rhizocarpon geminatum

Rhizocarpon geographicum (L.) DC.
Abundance: 4, common.
Habitat: on rock in the alpine.
Abundance in North America/Range: abundant; circumpolar arctic-alpine to temperate and bipolar. In western North America, south from arctic Alaska to California.

Rhizocarpon hochstetteri (Körber) Vainio
Abundance: 3, ?
Habitat: on rock. Found on shore rocks just above tidal mud flats of the Stikine River and at 1270 m on Cosmos peak on the mainland.
Abundance in North America/Range: infrequent; circumpolar arctic, south to Great Lakes and New England but range not adequately known.

Rhizocarpon praebadium (Nyl.) Zahlb.
Abundance: 1, ?
Habitat: on rock in the alpine.
Abundance in North America/Range: rare.
Notes: first record in North America.

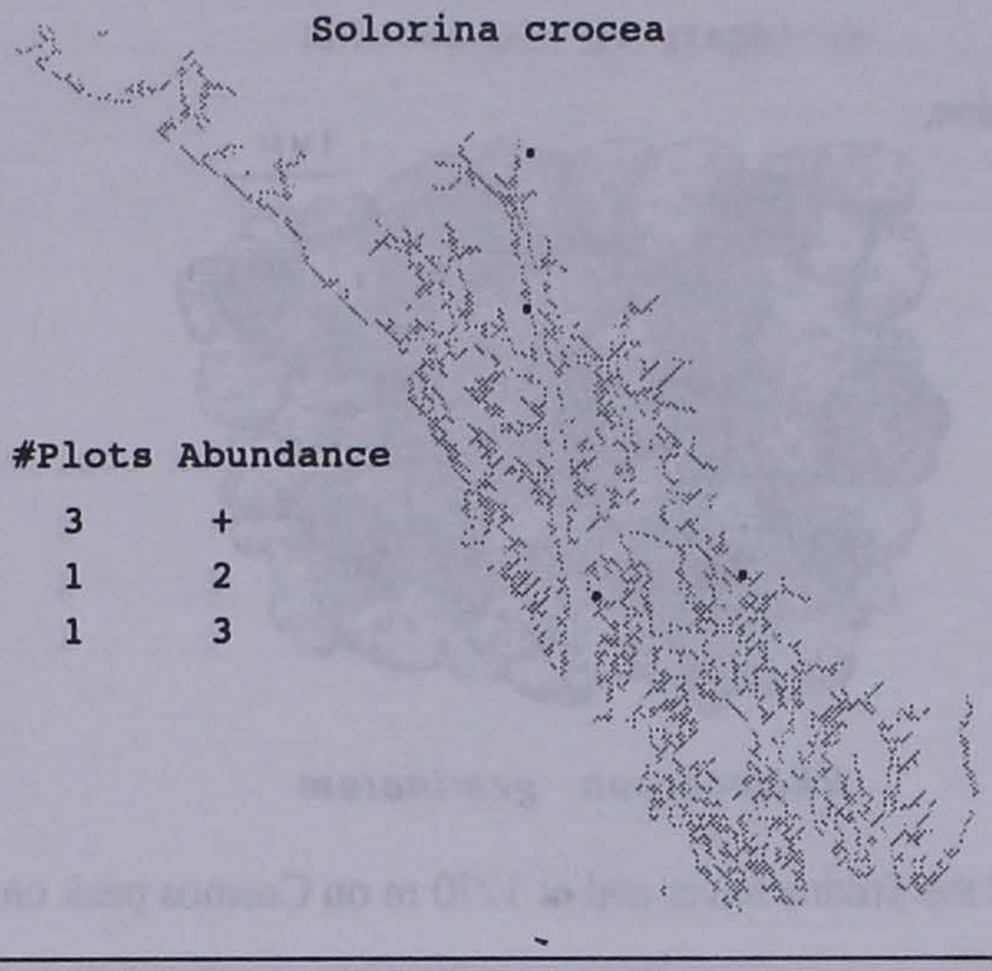
Rhizocarpon superficiale (Schaerer) Vainio
Abundance: 1,?
Habitat: on exposed, usually acidic, rocks (Thomson, 1979).
Abundance in North America/Range: circumpolar arctic-alpine, in western North America from Alaska to Colorado.
Notes: collected from Klondike Goldrush National Historic Monument near Skagway.

Rhizoplaca chrysoleuca (Sm.) Zopf
Abundance: 1, ?
Habitat: single collection from rock just above high tide line growing with other lichens and mosses, on southeast Baranof Island.
Abundance in North America/Range: common; circumpolar arctic, boreal and temperate.

Siphula ceratites (Wahlenb.) Fr.
Abundance: 12, abundant.
Habitat: widespread in muskeg pools from low elevation to the subalpine.
Abundance in North America/Range: infrequent; circumpolar high arctic-alpine species. Much more common in coastal British Columbia and southeast Alaska than elsewhere in North America.

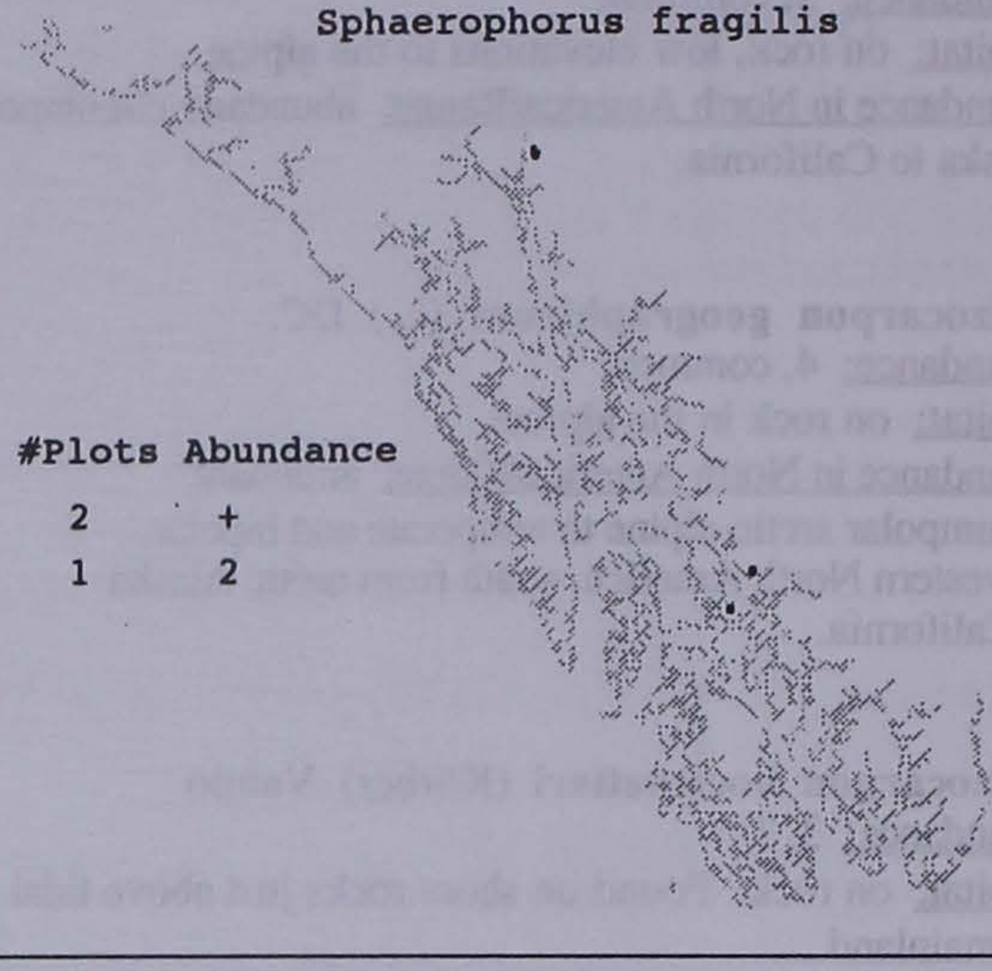
Solorina bispora Nyl.
Abundance: 0, rare
Habitat: in British Columbia over base-rich soil and rock in exposed subalpine and alpine localities (Goward et al., 1992).
Abundance in North America/Range: rare; circumpolar arctic-alpine and boreal. Range in North America not well understood occurring from Alaska south to New Mexico.
Notes: reported from Mt. Roberts and Granite Basin in the Juneau area (Krog, 1968).

Solorina crocea



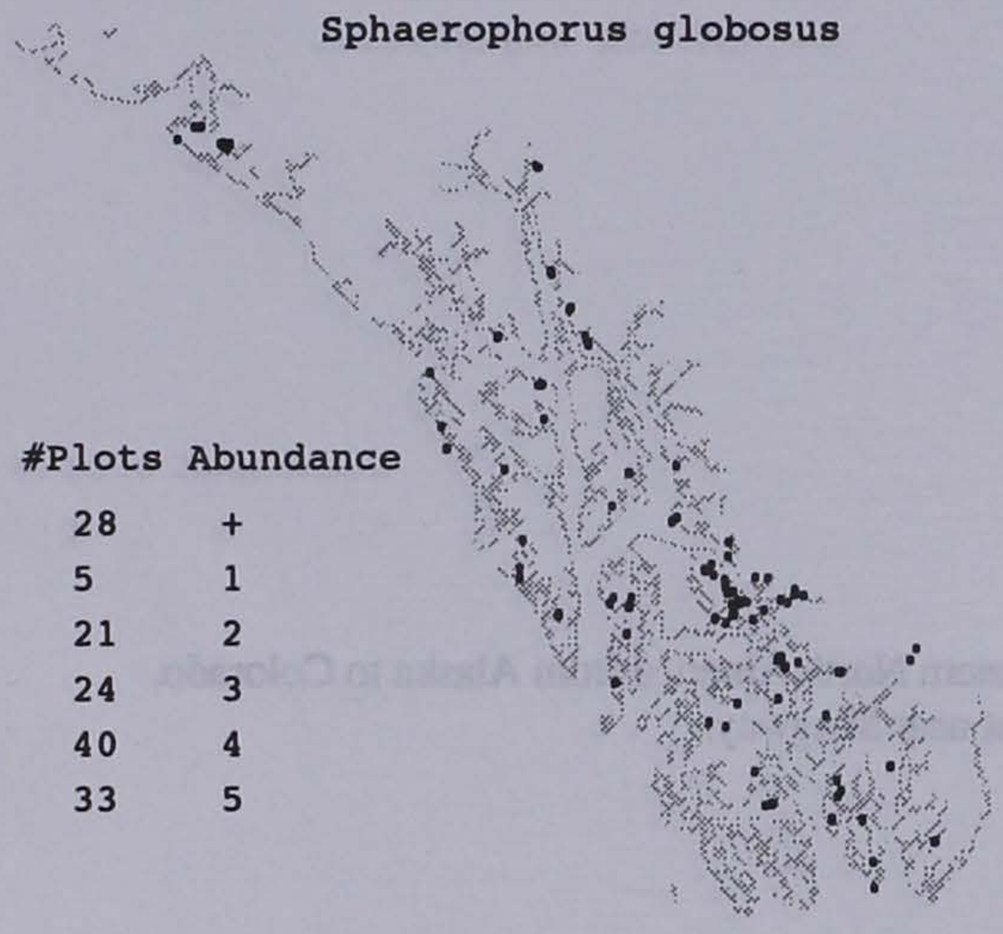
#Plots	Abundance
3	+
1	2
1	3

Sphaerophorus fragilis



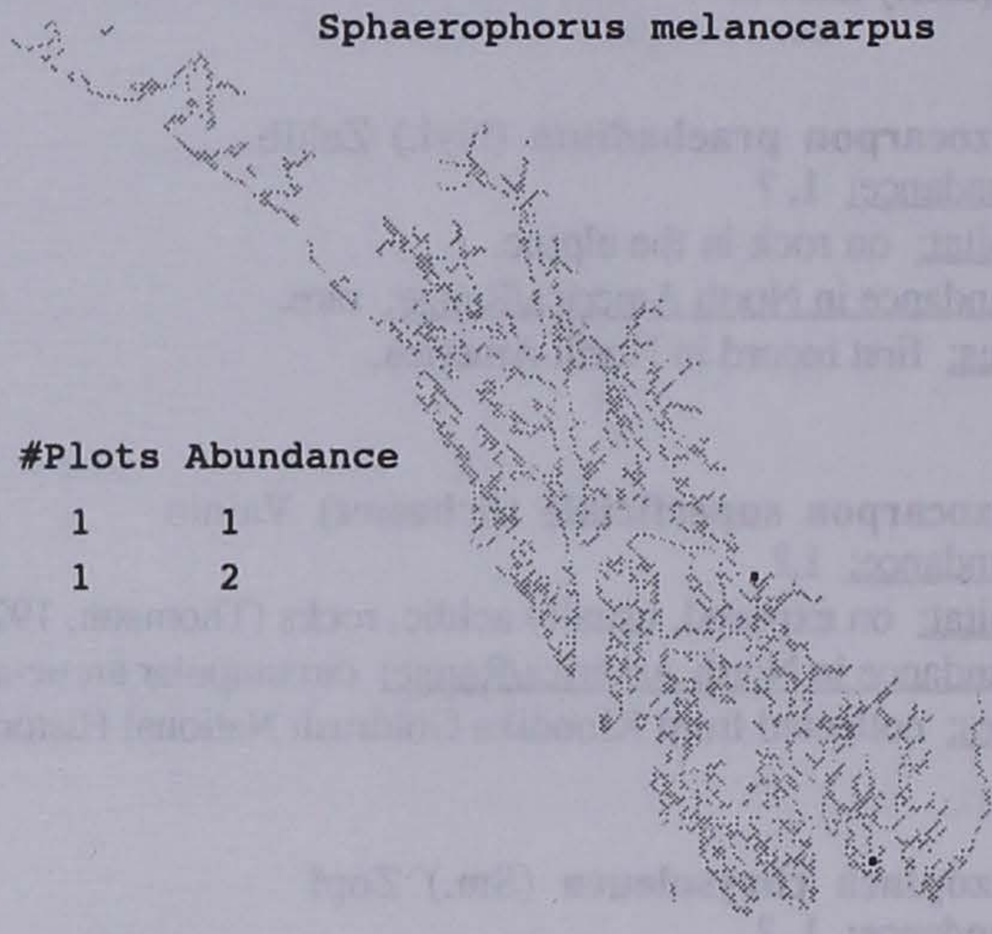
#Plots	Abundance
2	+
1	2

Sphaerophorus globosus



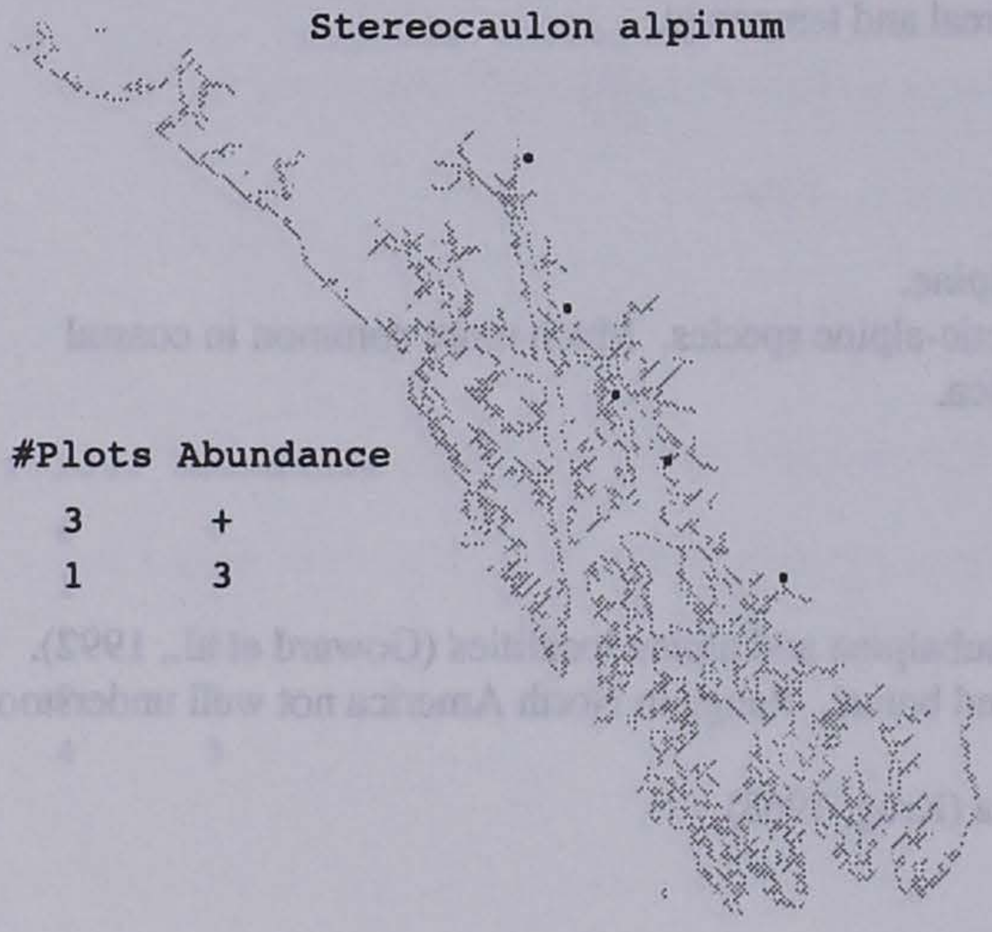
#Plots	Abundance
28	+
5	1
21	2
24	3
40	4
33	5

Sphaerophorus melanocarpus



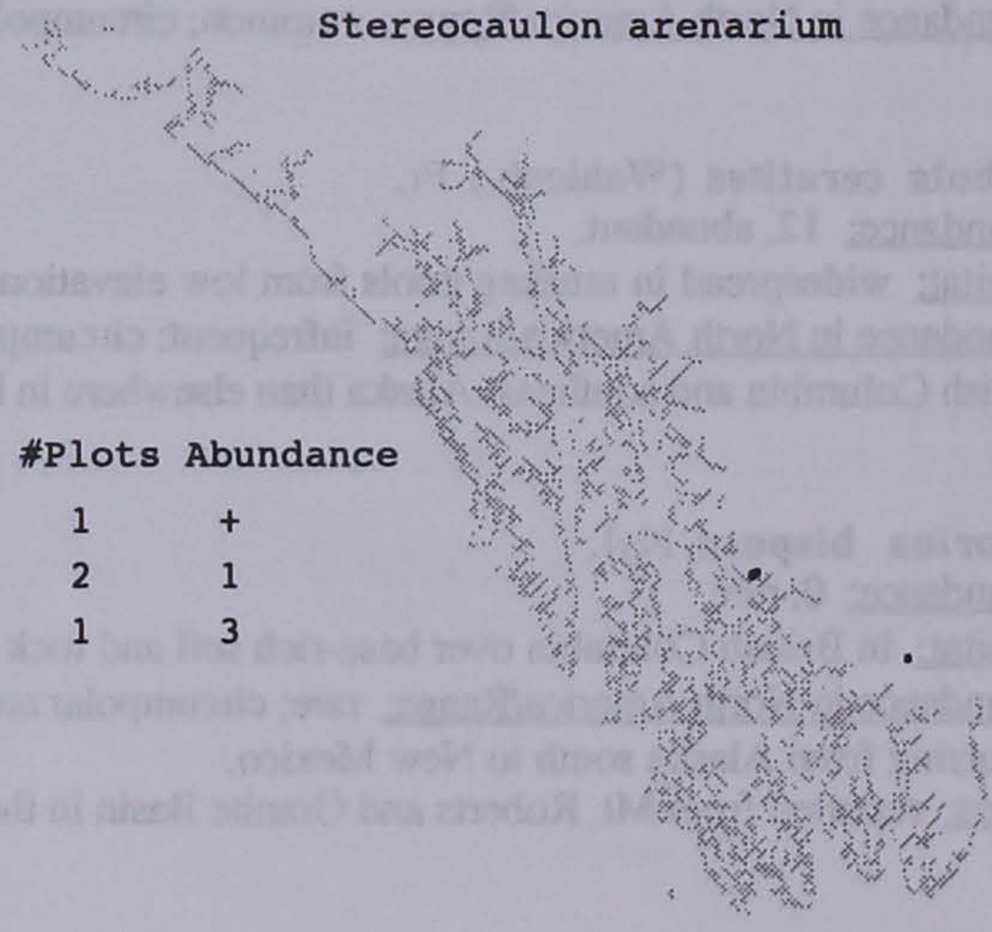
#Plots	Abundance
1	1
1	2

Stereocaulon alpinum



#Plots	Abundance
3	+
1	3

Stereocaulon arenarium



#Plots	Abundance
1	+
2	1
1	3

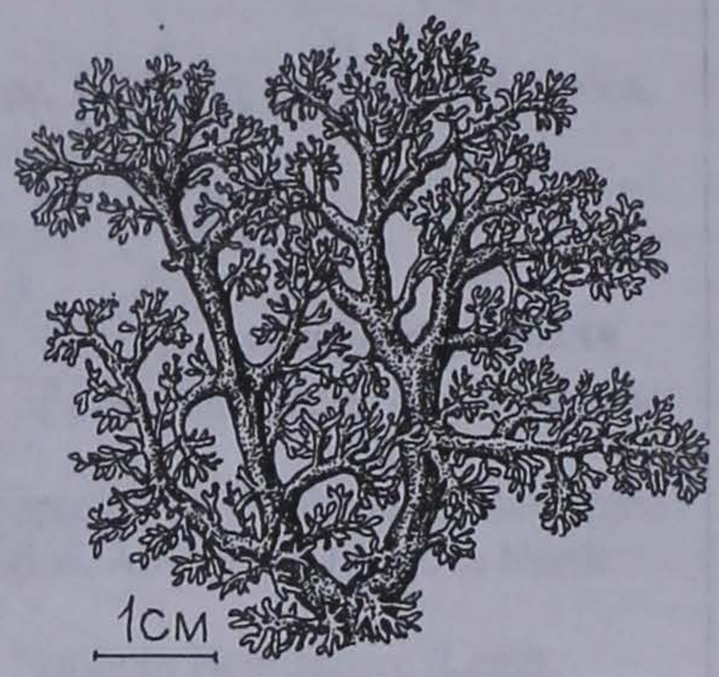
Solorina crocea (L.) Ach.
Abundance: 4, common.
Habitat: over soil in seepage sites below late-lying snow patches at alpine and subalpine elevations.
Abundance in North America/Range: common; circumpolar arctic-alpine, south to New Mexico.

Solorina spongiosa (Sm.) Anzi
Abundance: 0, ?
Habitat: in British Columbia this lichen is found over moist calcareous soil and moss in exposed alpine and subalpine localities (Goward et al., 1992).
Abundance in North America/Range: common; arctic-temperate circumpolar, known from Europe, North America, Kamchatka and New Zealand. Rare in western North America from British Columbia south to New Mexico.
Notes: reported from Yakutat Bay (Cummings, 1904).

Sphaerophorus fragilis (L.) Pers.
Abundance: 3, infrequent.
Habitat: on rock in the alpine.
Abundance in North America/Range: common; circumpolar arctic-alpine. Much more common in arctic North America than in southeast Alaska.

Sphaerophorus globosus (Huds.) Vainio
Abundance: common.
Habitat: on soil and bark in alpine and subalpine.
Abundance in North America/Range: common; circumpolar arctic-alpine. This form predominates in the Arctic, while variety *gracilis* predominates in southeastern Alaska.

var. gracilis (Müll. Arg.) Zahlbr.
Abundance: 145, abundant.
Habitat: On bark of trunks and branches of trees, mainly conifers but also on *Populus* and various deciduous shrubs. All forest types from low elevation to the subalpine.
Notes: *Sphaerophorus globosus* is probably the most common macrolichen in southeastern Alaska. The variety *gracilis* appears to intergrade completely with var. *globosus*. This lichen was observed at 144 sites and more than 50 examples were collected.

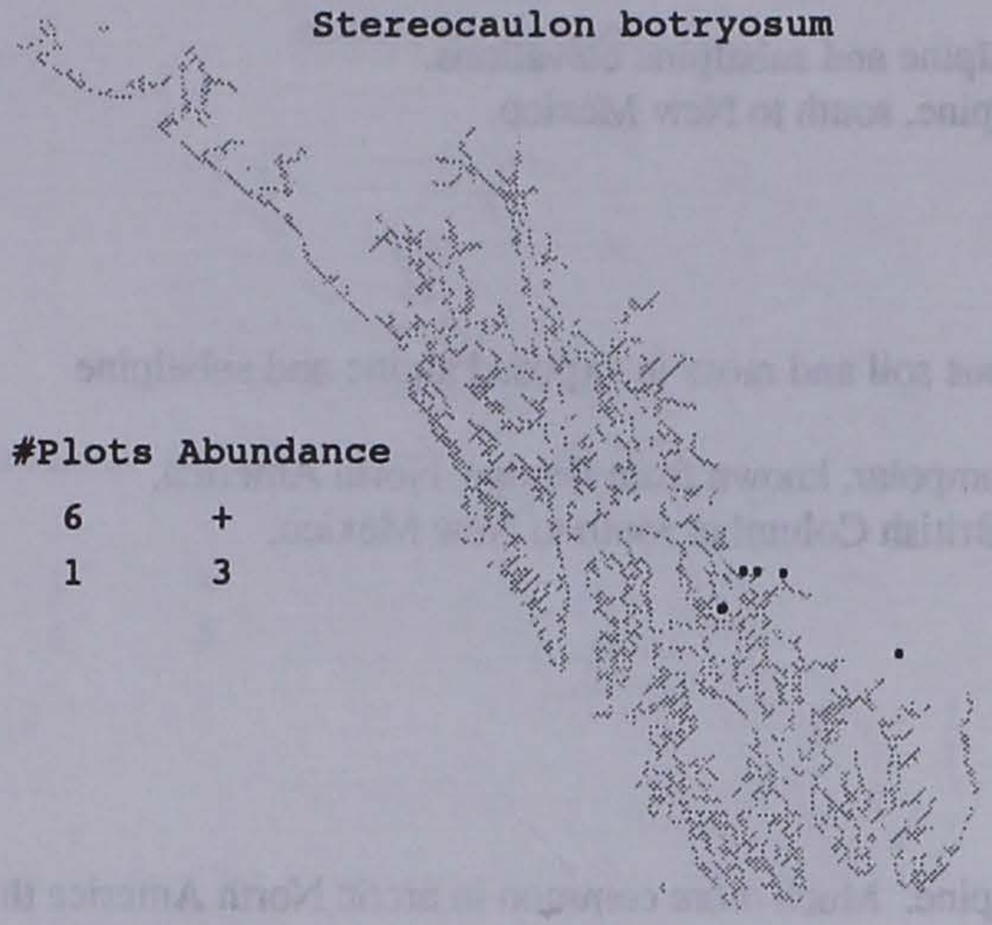


Sphaerophorus globosus

Sphaerophorus melanocarpus (Sw.) DC. in Lam & DC.
Abundance: 2, rare.
Habitat: on trees from sea level to the subalpine.
Abundance in North America/Range: poorly known western North American oceanic species. Infrequent-rare, though widespread, in Europe,Asia, North and South America, East Africa, Solomon Islands, Australia and New Zealand (Purvis et al., 1992).

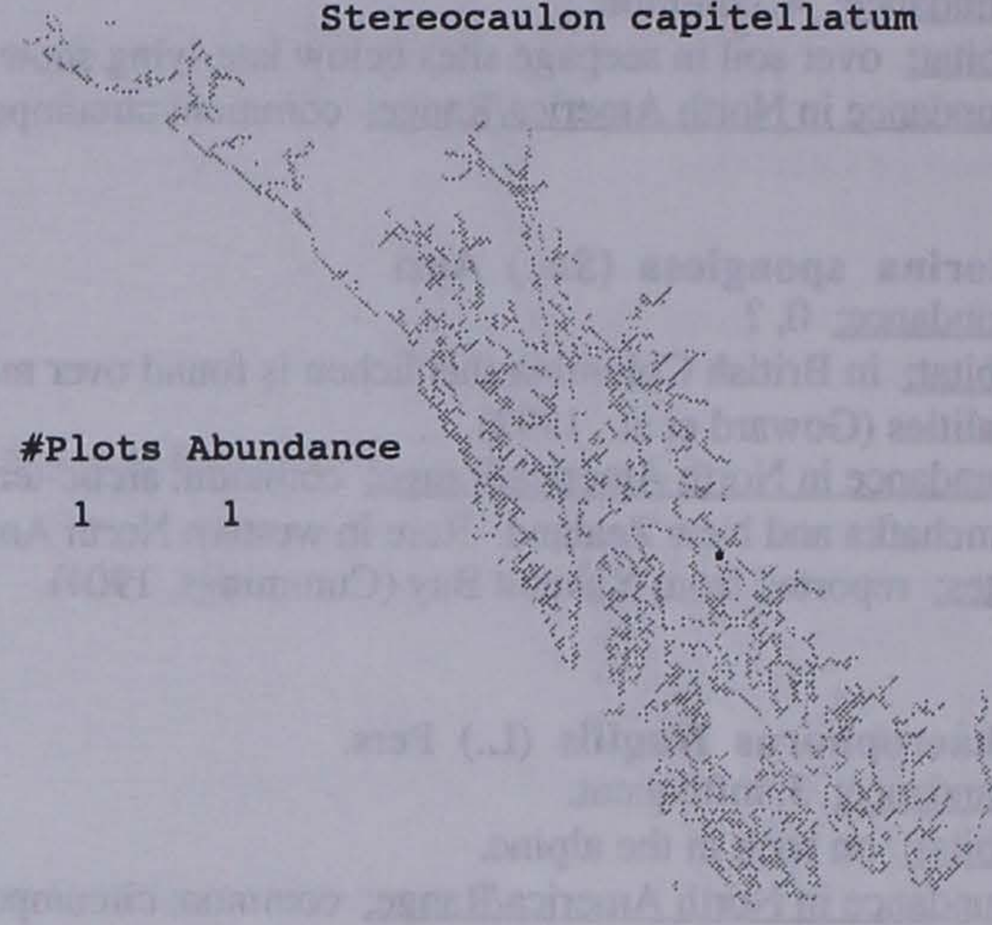
Stereocaulon alpinum Laur. ex Funck
Abundance: 6, ?
Habitat: on moss and humus over gravel, on bare rock and on decomposing wood in exposed areas from low elevation (glacier termini) to the alpine.
Abundance in North America/Range: common; circumpolar arctic-alpine.

Stereocaulon botryosum



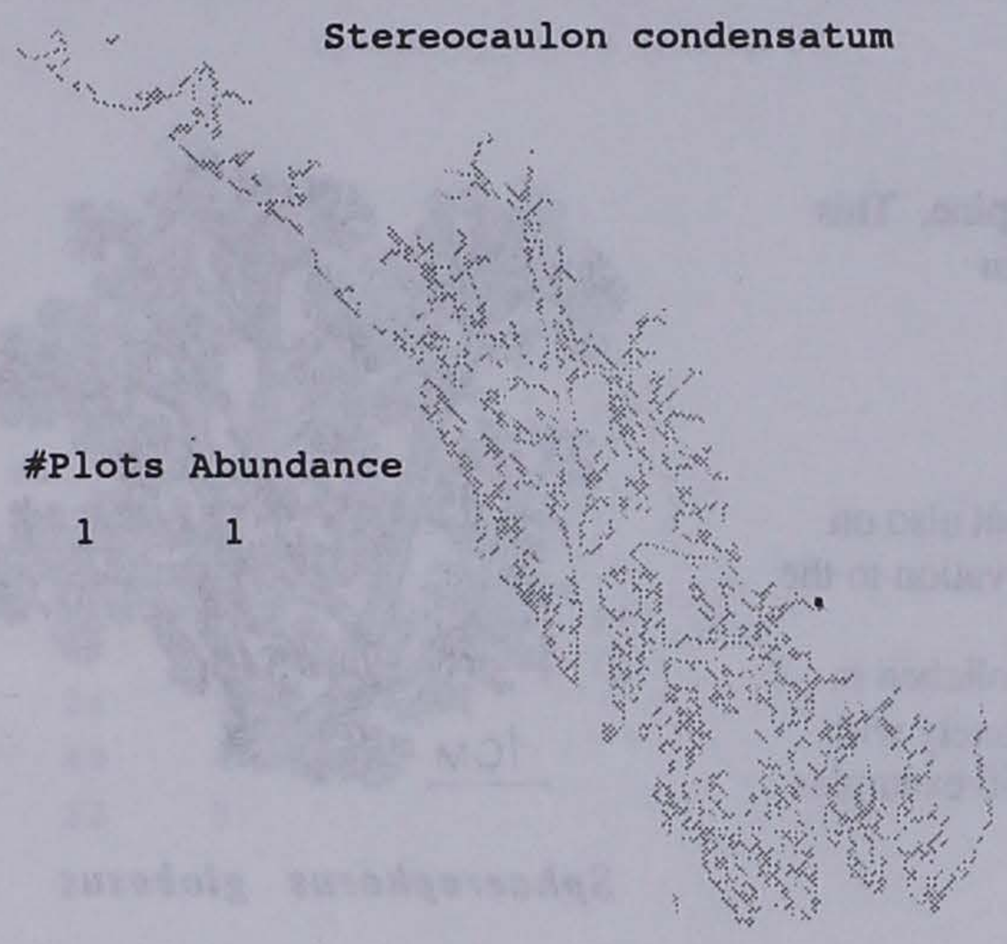
#Plots	Abundance
6	+
1	3

Stereocaulon capitellatum



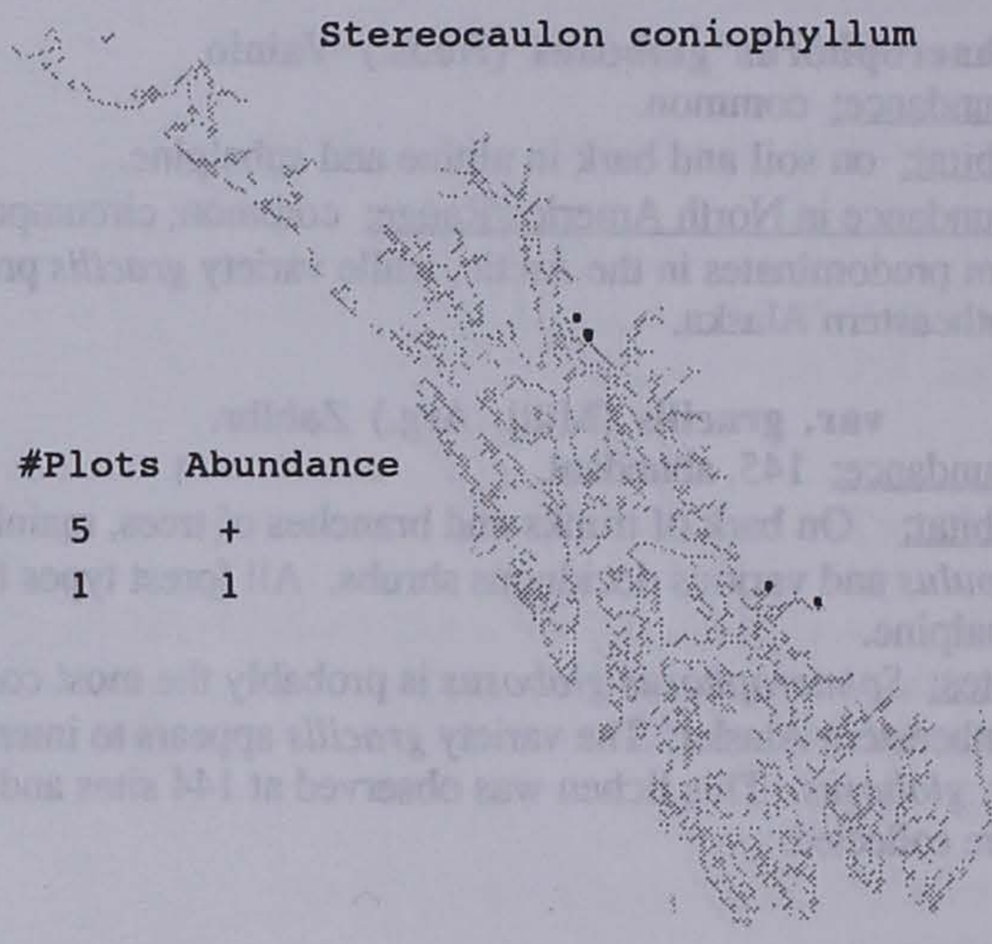
#Plots	Abundance
1	1

Stereocaulon condensatum



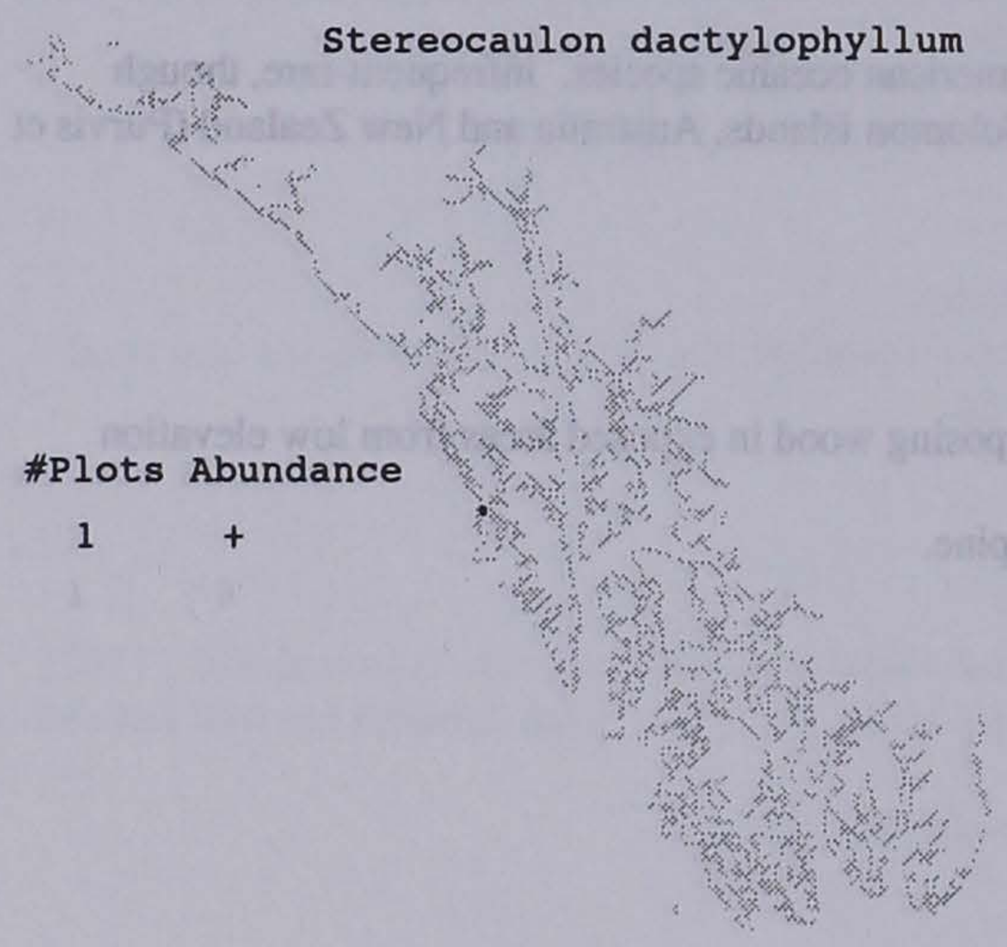
#Plots	Abundance
1	1

Stereocaulon coniophyllum



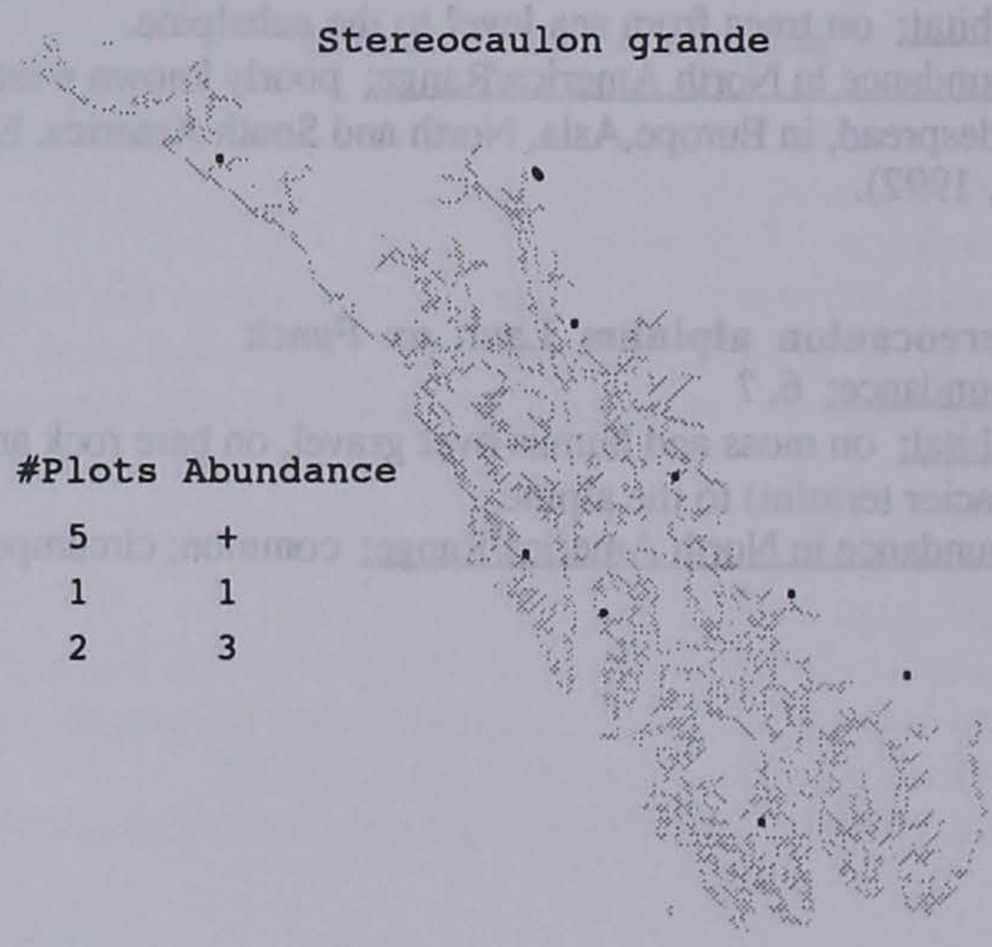
#Plots	Abundance
5	+
1	1

Stereocaulon dactylophyllum



#Plots	Abundance
1	+

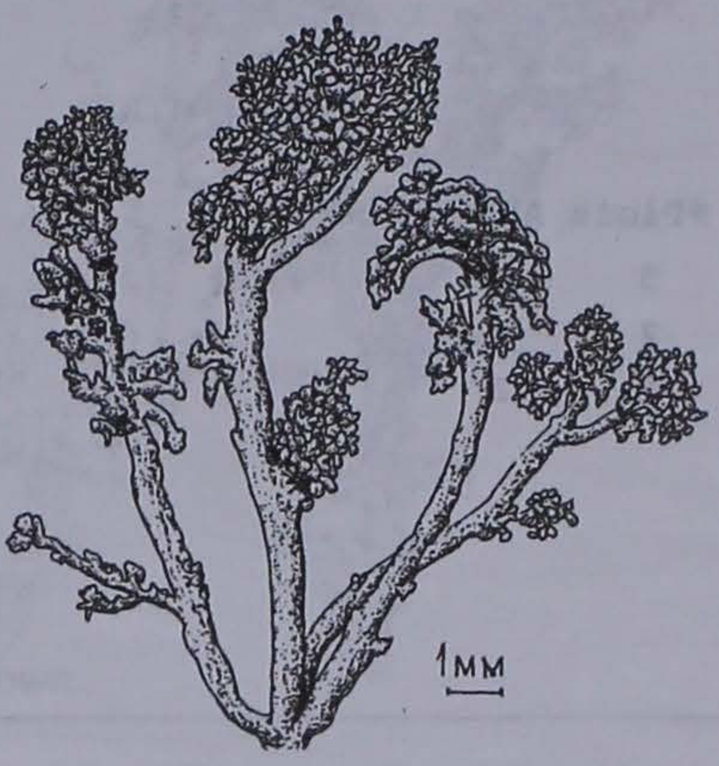
Stereocaulon grande



#Plots	Abundance
5	+
1	1
2	3

Stereocaulon arenarium (Savicz) Lamb
Abundance: 5, ?
Habitat: on rock in exposed areas, in soil, and on other mosses and lichens, from low elevation (glacier termini) to the alpine. Also collected from a lava flow.
Abundance in North America/Range: common-infrequent; amphi-Beringian.

Stereocaulon botryosum Ach.
Habitat: on rock with or without mosses and on rock covered with thin layer of humus, in exposed areas from sea level to the alpine. On lava flows.
Abundance in North America/Range: common; circumpolar arctic-alpine and subalpine.



Stereocaulon botryosum

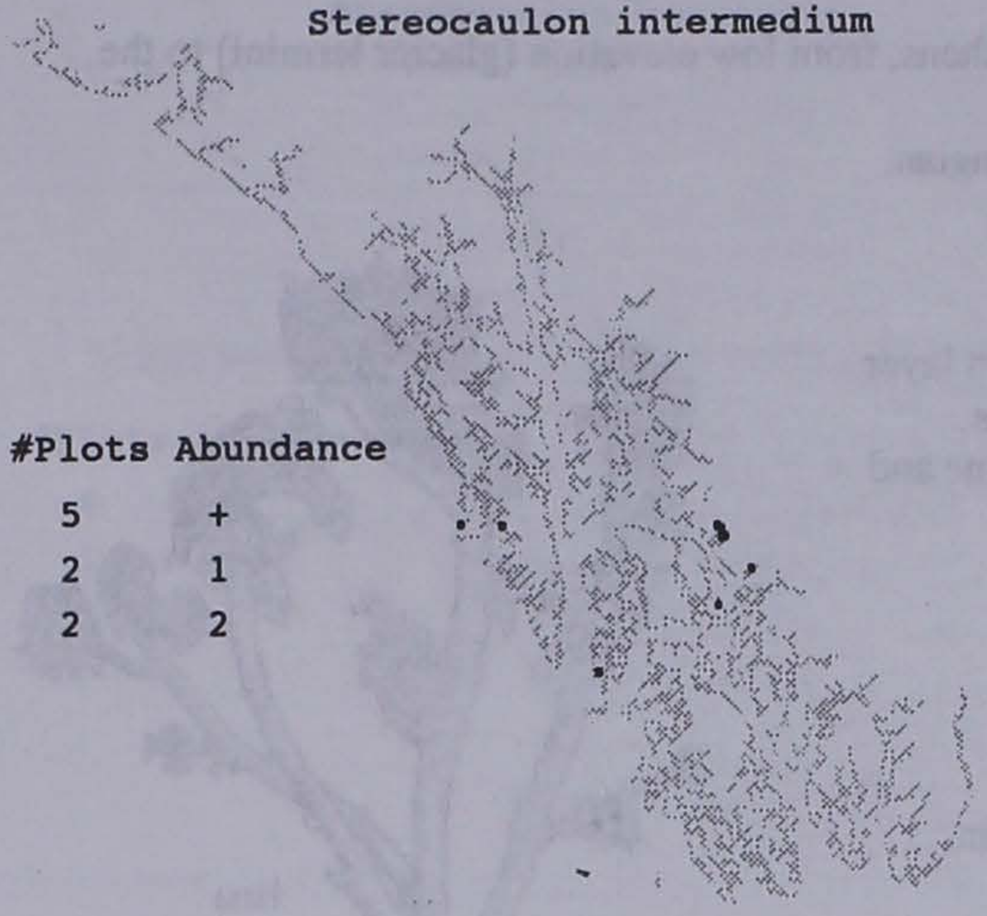
Stereocaulon capitellatum Magnusson
Abundance: 3, ?
Habitat: on rock.
Abundance in North America/Range: known from Kamchatka (Mikulin, 1990), Greenland, Iceland and Europe (Lamb, 1997).
Notes: new to North America.

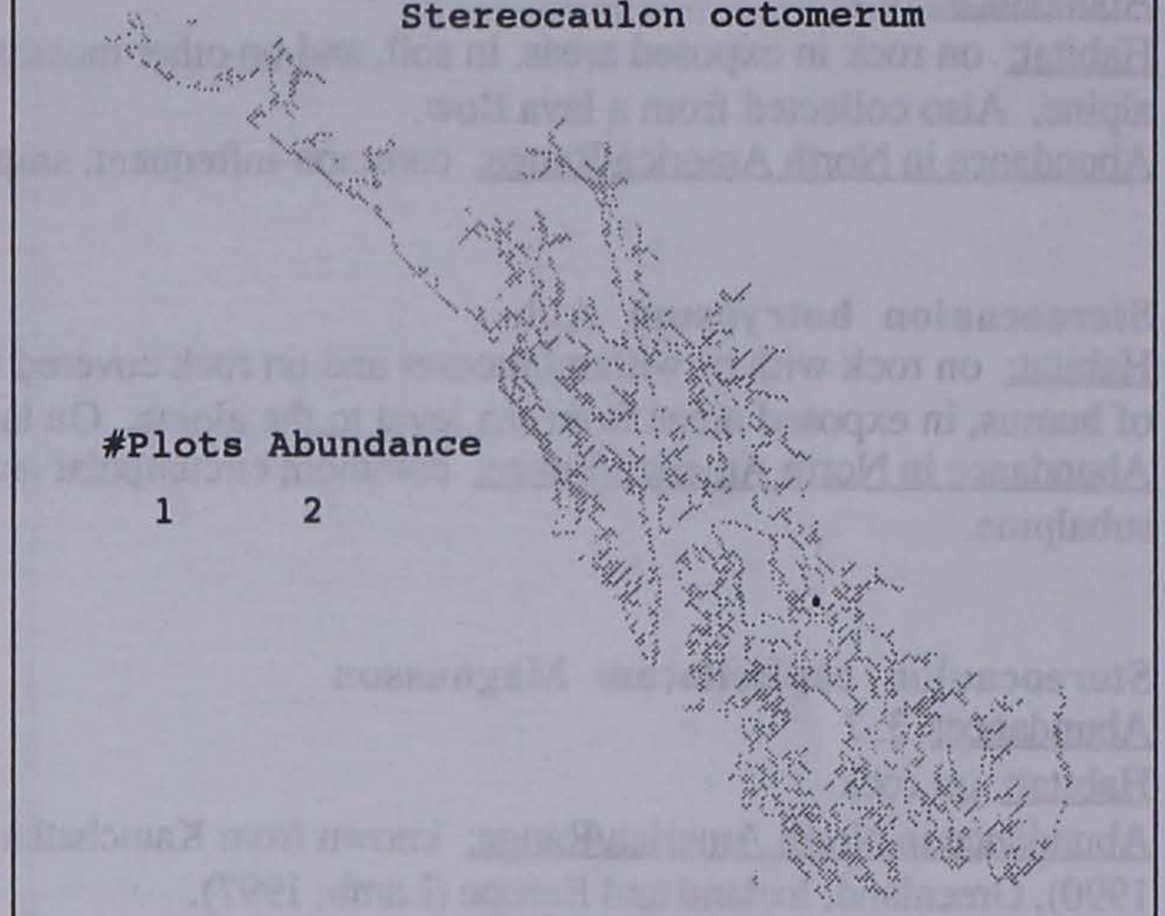
Stereocaulon condensatum Hoffm.
Abundance: 1, ?
Habitat: on rock.
Abundance in North America/Range: probably amphi-Atlantic, known from central Europe, Kamchatka and North America, where it ranges from Alaska across Canada and the northern United States to New England.

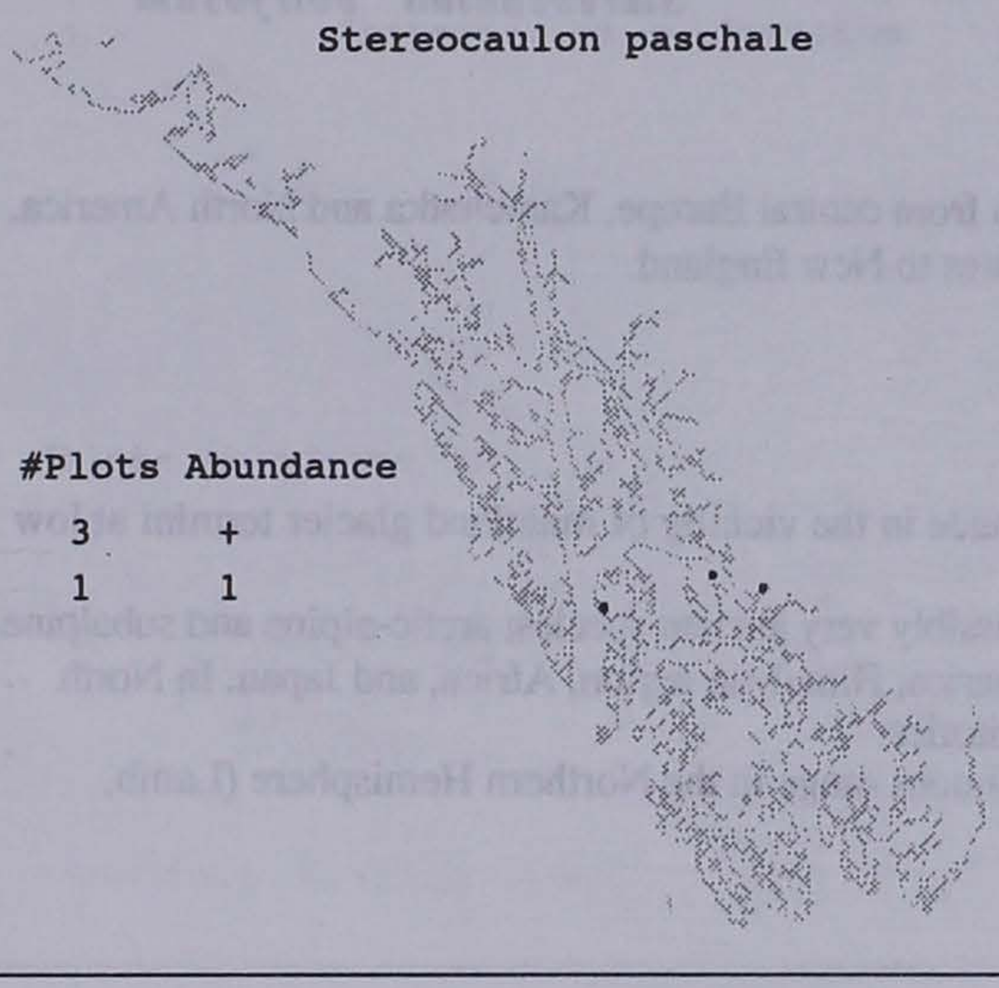
Stereocaulon coniophyllum Lamb
Abundance: 8, ?
Habitat: on rock, with or without mosses. All our collections were made in the vicinity of mainland glacier termini at low elevations.
Abundance in North America/Range: rare; widely circumpolar, and possibly very ancient species; arctic-alpine and subalpine, widespread outside North America and known from Europe, North America, Himalyan region, Africa, and Japan. In North America known only from a few records in Alaska and Northwest Territories.
Notes: present day locations may be relict stations of a formerly continuous range in the Northern Hemisphere (Lamb, 1977).

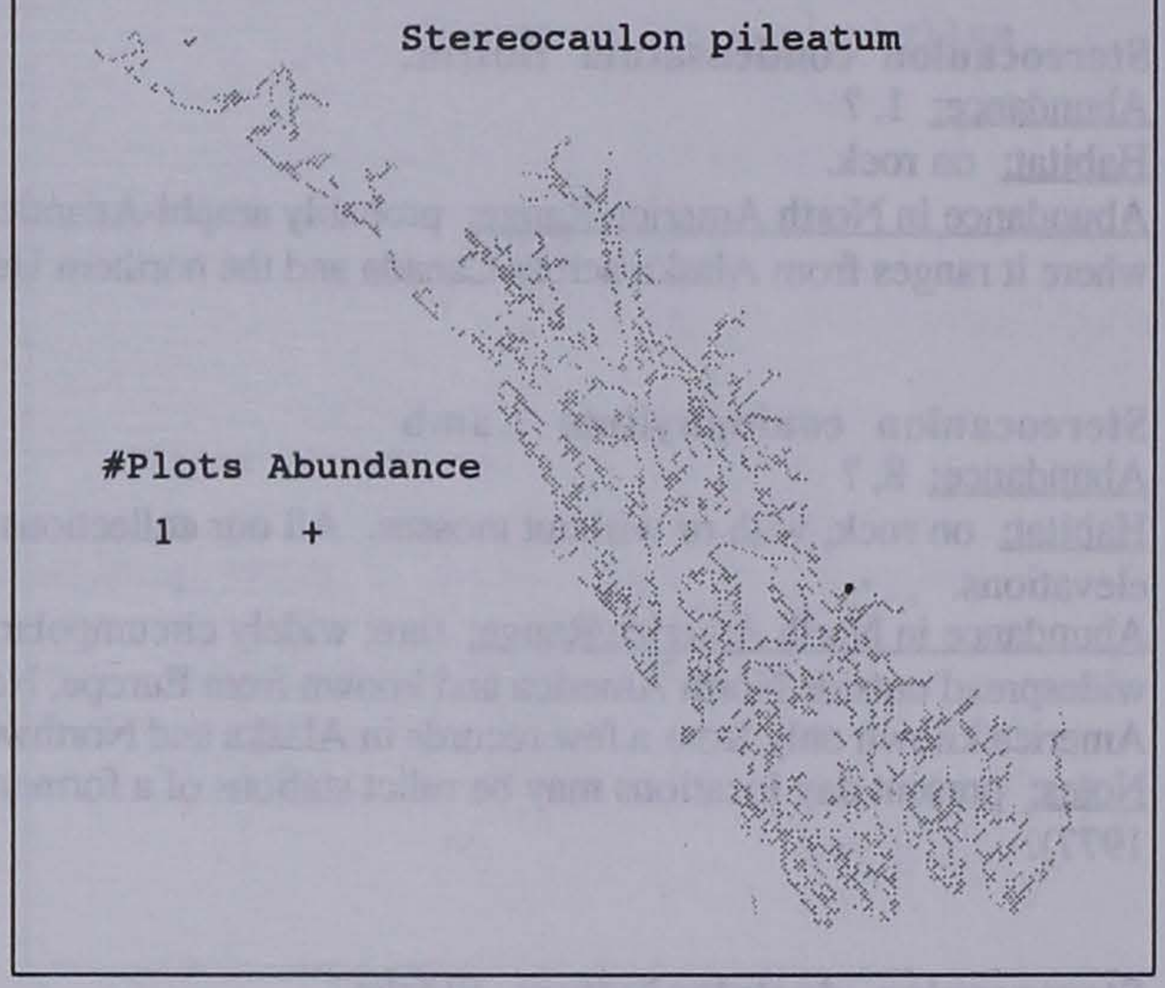
Stereocaulon dactylophyllum Flörke
Abundance: 1, ?
Habitat: single collection from mossy rock face along beach of Kruzof Island.
Abundance in North America/Range: rarely collected, mainly an eastern North America species. Amphi-Atlantic but distribution and habitat are not well understood .

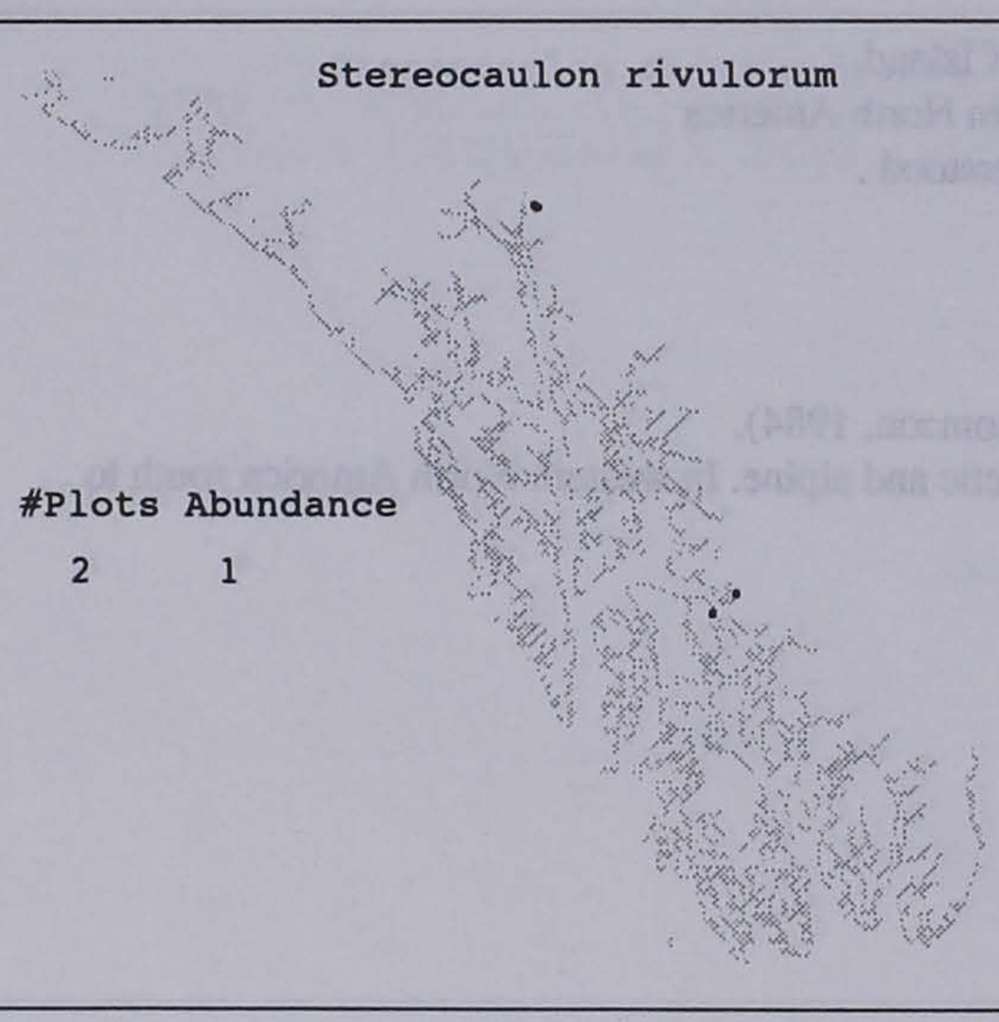
Stereocaulon glareosum (Savicz) Magn.
Abundance: 0, ?
Habitat: on bare soil, frost boils and among mosses on acid soils (Thomson, 1984).
Abundance in North America/Range: common; circumpolar boreal-arctic and alpine. In western North America south to Mexico. Also known from northern Andes of South America.
Notes: reported from the Skagway area (Thomson, 1984).

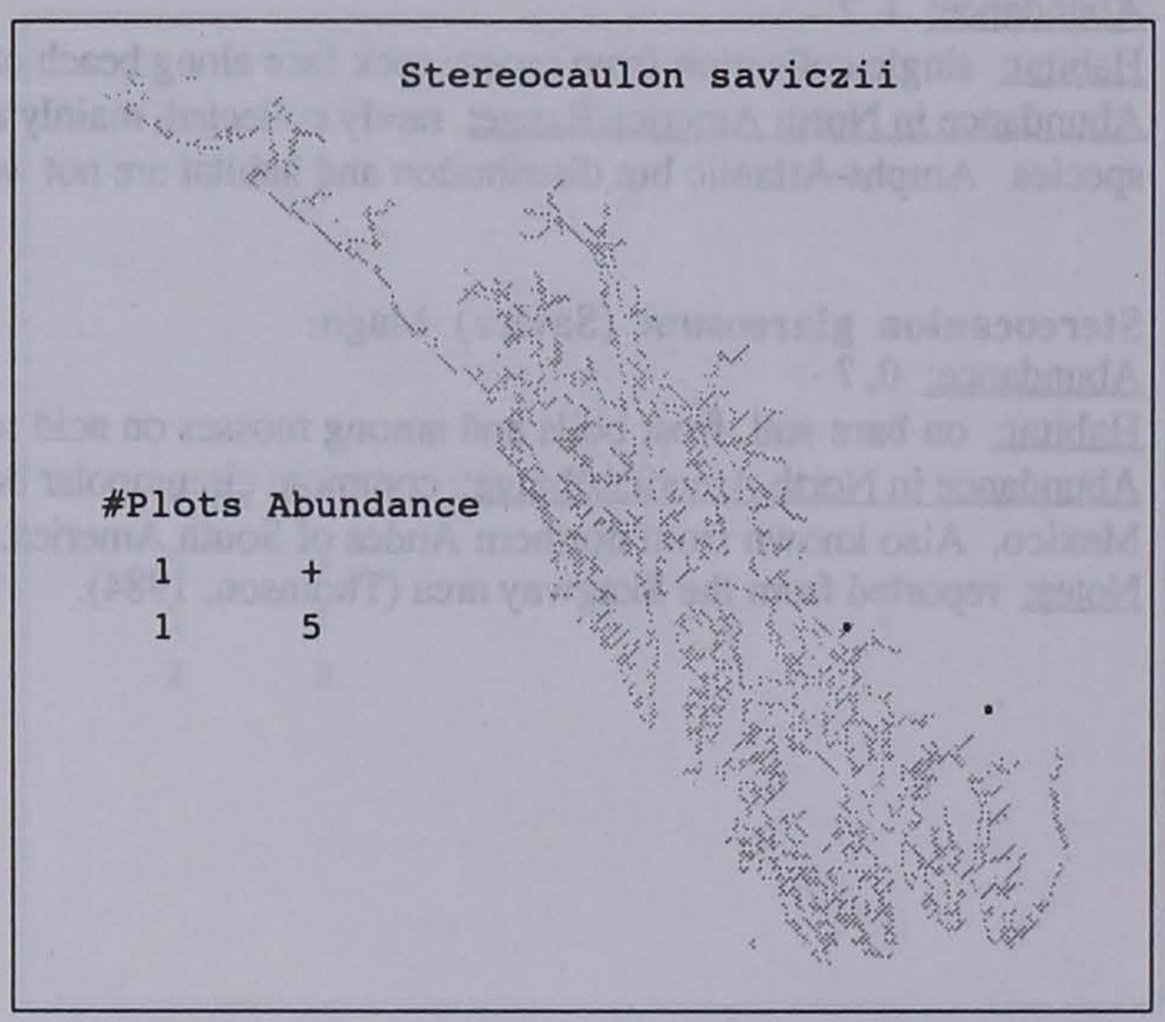

Stereocaulon intermedium
#Plots Abundance
5 +
2 1
2 2


Stereocaulon octomerum
#Plots Abundance
1 2


Stereocaulon paschale
#Plots Abundance
3 +
1 1


Stereocaulon pileatum
#Plots Abundance
1 +

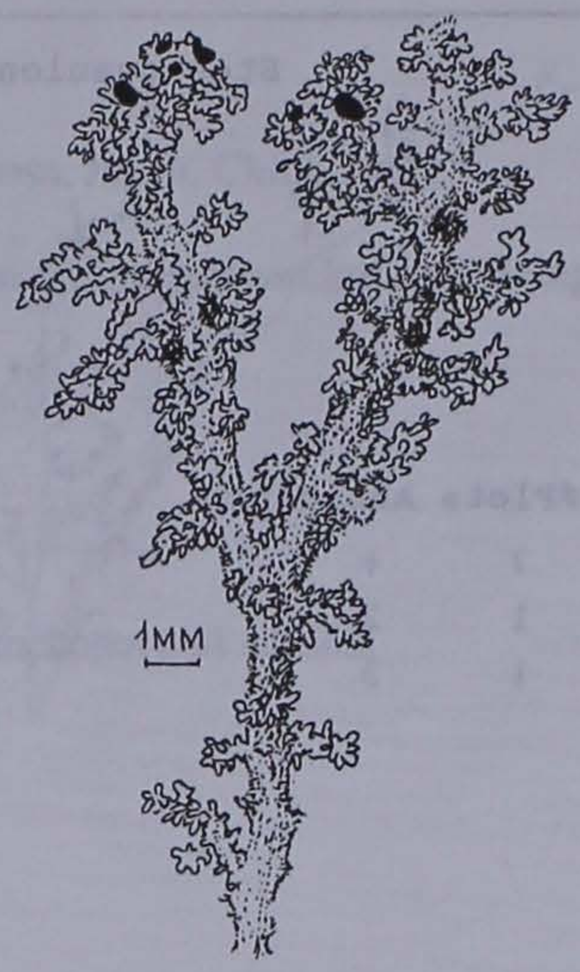

Stereocaulon rivulorum
#Plots Abundance
2 1


Stereocaulon saviczii
#Plots Abundance
1 +
1 5

Stereocaulon grande (H. Magn.) H. Magn.
Abundance: 8, common.
Habitat: on rock, usually associated with mosses. Found in a variety of habitats including rock faces, lava flows, crushed rock road base, and soil. From sea level to the alpine.
Distribution/Range: common; circumpolar low arctic and boreal.

Stereocaulon groenlandicum (Dahl) Lamb
Abundance: 1, ?
Habitat: on rock
Distribution/Range: rare-infrequent amphi-Atlantic species, known from Alaska, Greenland and Scandinavia.

Stereocaulon intermedium (Savicz) Magn.
Abundance: 9, common.
Habitat: on rock, usually associated with mosses, from sea level to the alpine.
Abundance in North America/Range: common; amphi-Beringian, oceanic species known also from Japan and Kamchatka.



Stereocaulon grande

Stereocaulon myriocarpum Th. Fr.
Abundance: 0, ?
Abundance in North America/Range: two disjunct population centers: North and South America and the other in Asia. Occurs in western North America, from Alaska to California.
Notes: reported from Granite Basin and the Shrine of St. Therese in the Juneau area (Krog, 1968). Closely related to *S. tomentosum*, and may not be a distinct species (Lamb, 1977).

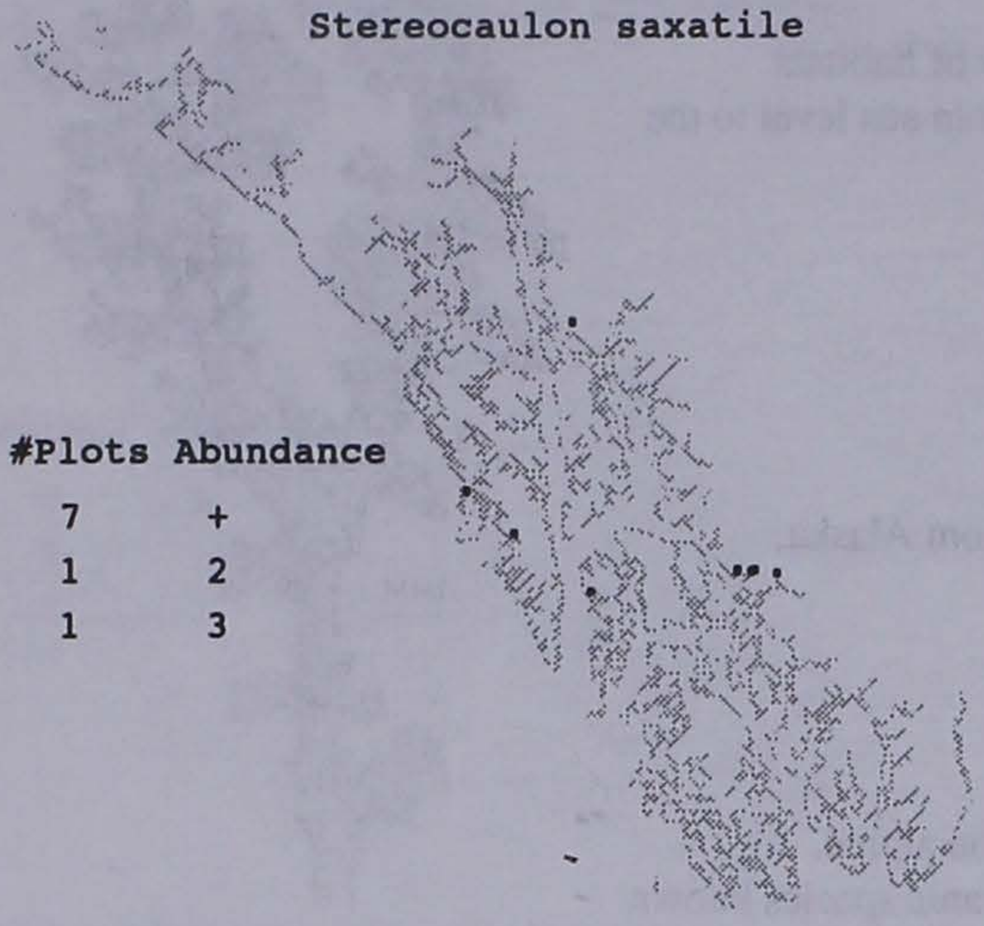
Stereocaulon octomerum Mull. Arg.
Abundance: 1, ?
Habitat: single collection from moss covered rock in the subalpine of Rowan Mtn.
Abundance in North America/Range: rarely collected. Disjunct distribution--Japan and Alaska (Lamb, 1977).

Stereocaulon paschale (L.) Hoffm.
Abundance: 5, ?
Habitat: on bare rock or soil; can be associated with mosses; low elevations, alpine and subalpine.
Abundance in North America/Range: abundant; circumpolar low arctic and boreal.

Stereocaulon pileatum Ach.
Sensitivity: tolerant; spreading into urban and industrial areas in the British Isles (Hawksworth, 1975).
Abundance: 1, rare?
Habitat: single collection from bedrock among mosses on LeConte Bay, about 2 miles from the glacier terminus in salt water.
Abundance in North America/Range: infrequent; circumpolar boreal, primarily an amphi-Atlantic species with additional records from Siberia, Japan and Hawaii.
Notes: western range extension in North America.

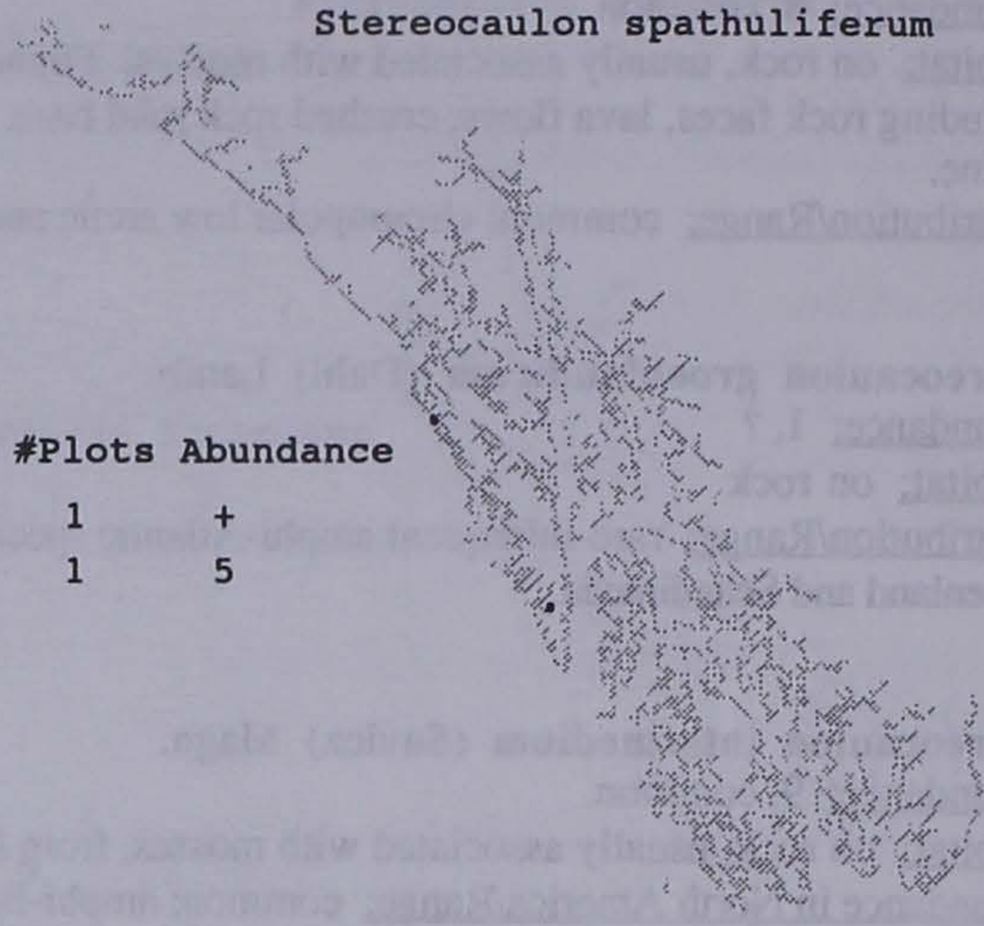
Stereocaulon rivulorum Magn.
Abundance: 2, ?
Habitat: our collections from the ground in high alpine. According to Thomson (1984) this species is usually found below permanent snow banks and along flood banks of streams.
Abundance in North America/Range: circumpolar, arctic and alpine from Greenland, across Canada to Alaska and south to Colorado and Washington.

Stereocaulon saxatile



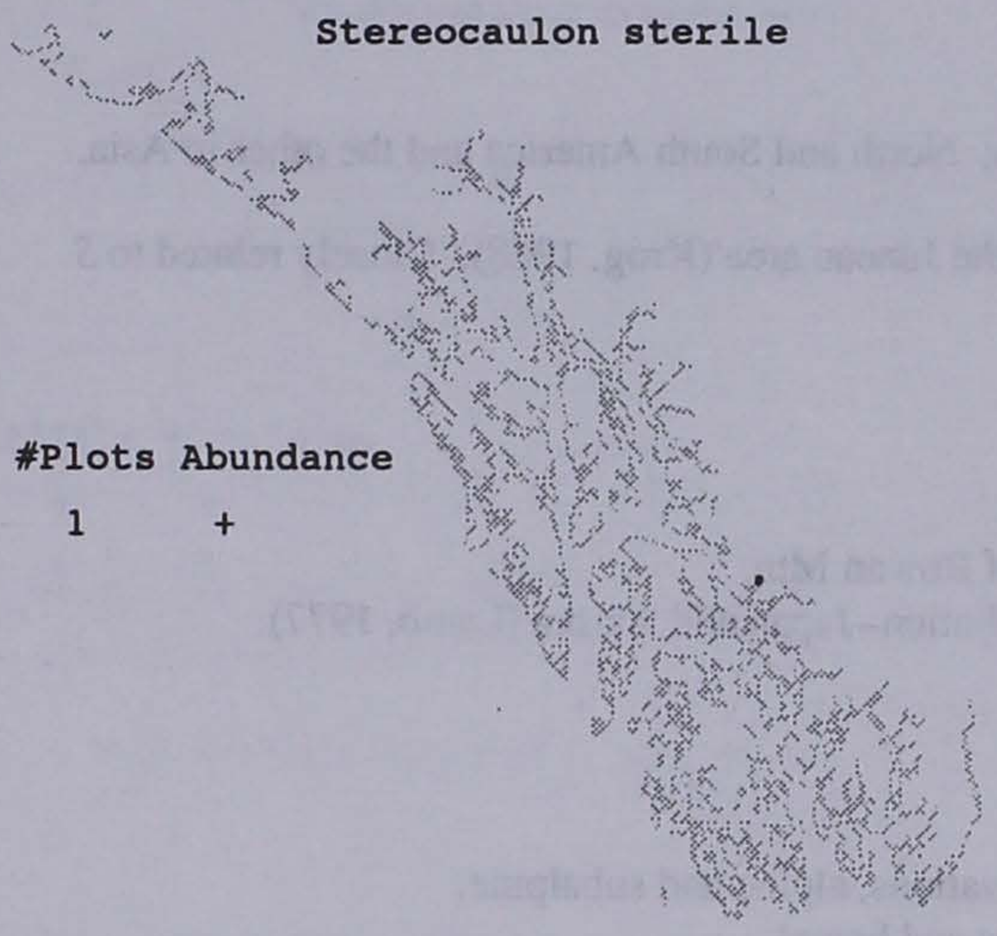
#Plots	Abundance
7	+
1	2
1	3

Stereocaulon spathuliferum



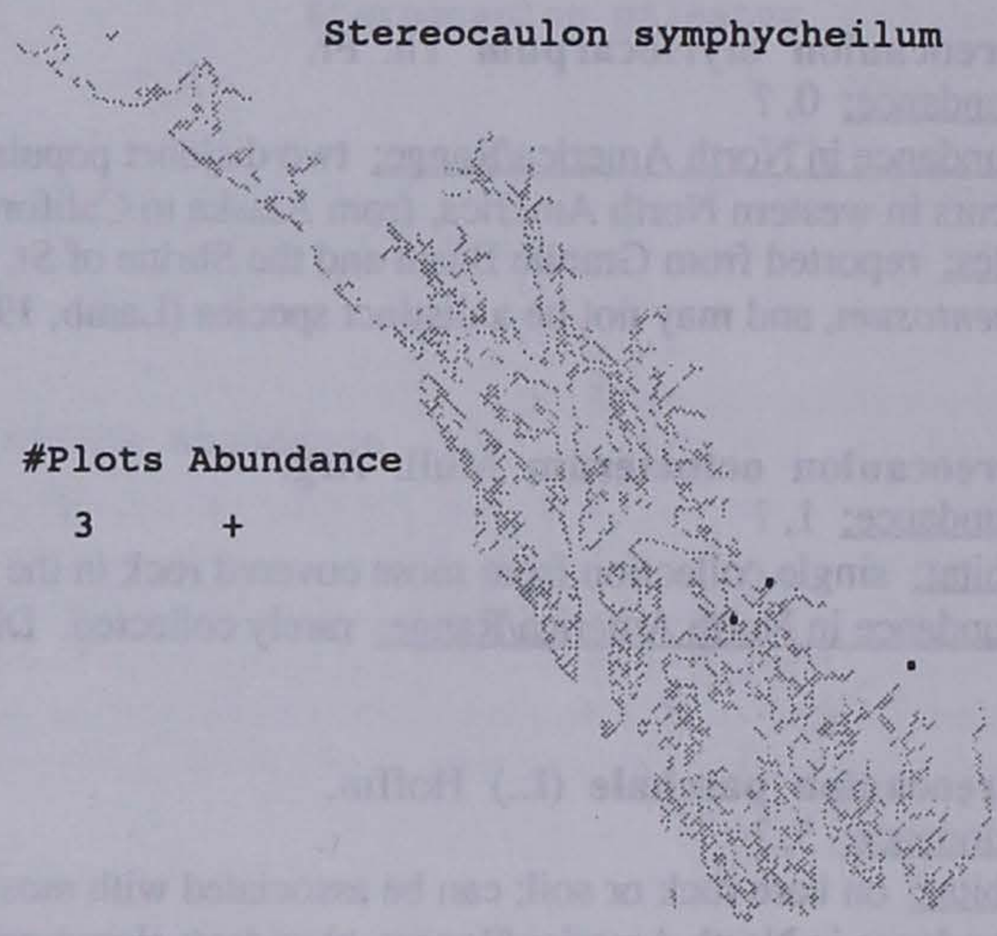
#Plots	Abundance
1	+
1	5

Stereocaulon sterile



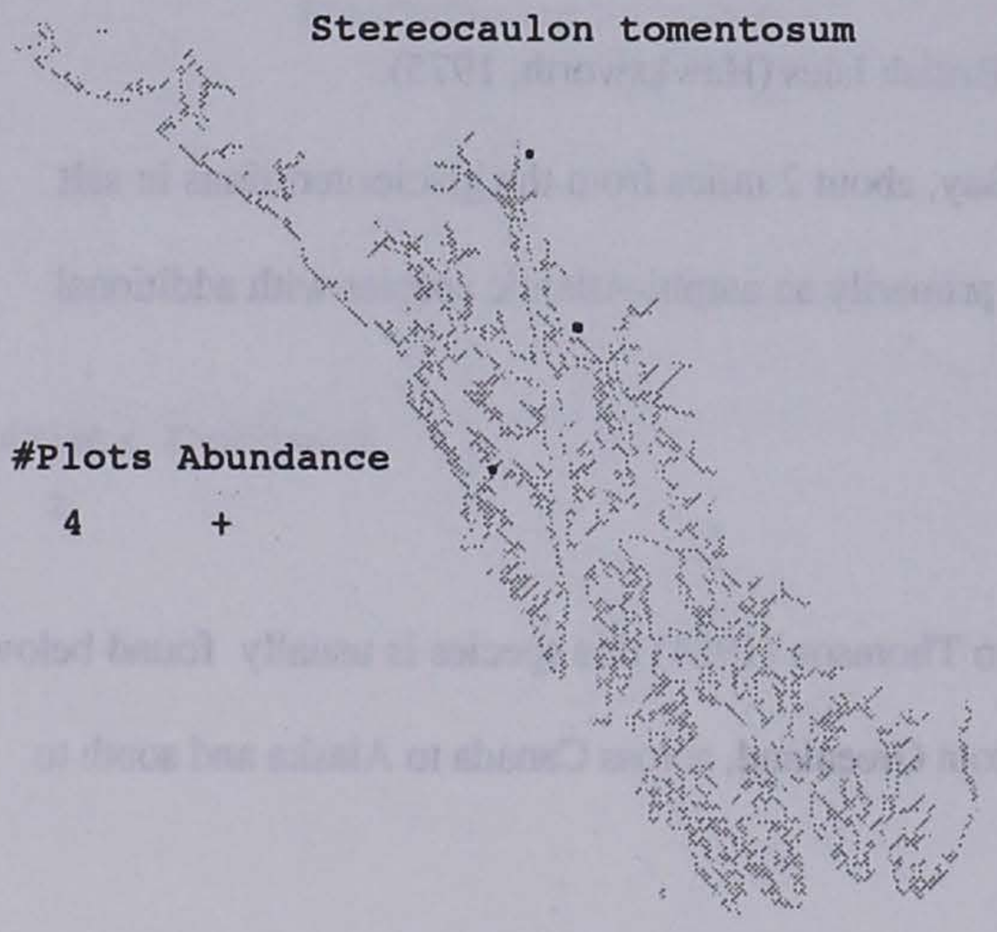
#Plots	Abundance
1	+

Stereocaulon symphycheilum



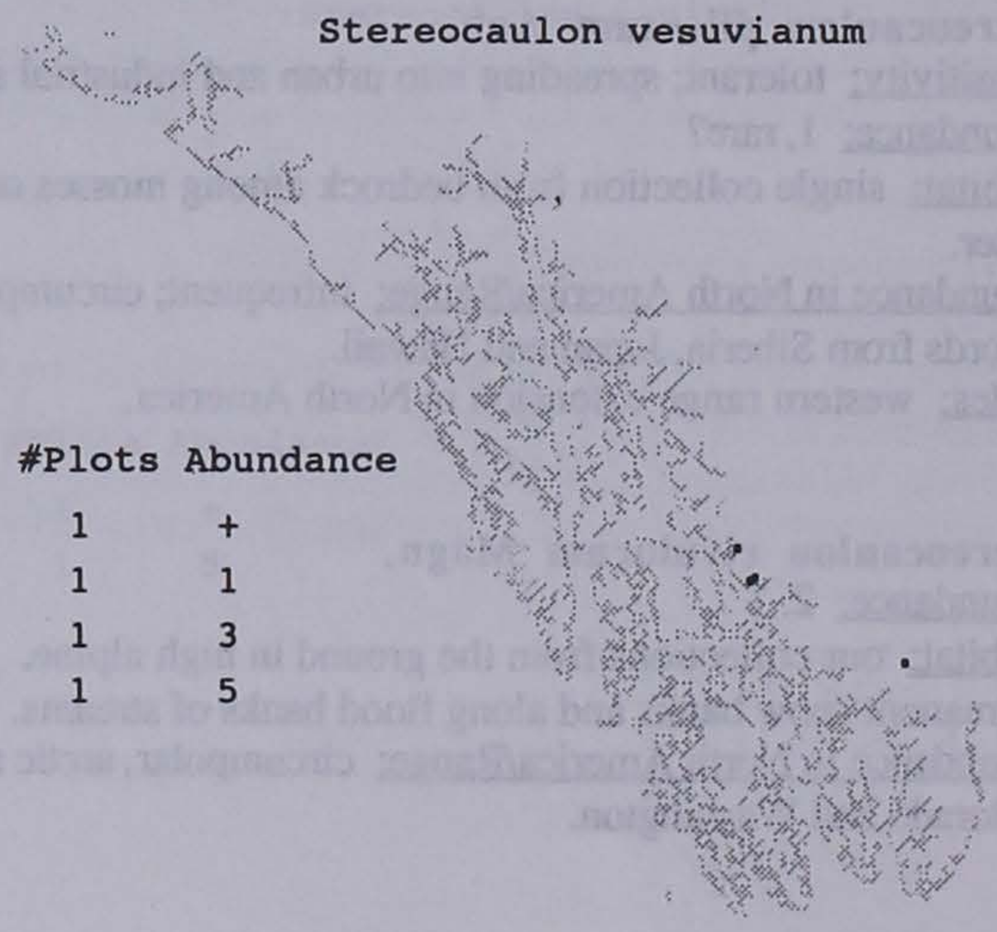
#Plots	Abundance
3	+

Stereocaulon tomentosum



#Plots	Abundance
4	+

Stereocaulon vesuvianum



#Plots	Abundance
1	+
1	1
1	3
1	5

Stereocaulon sasakii Zahlbr.
Abundance: 0, ?
Habitat: on soil (Lamb, 1977).
Abundance in North America/Range: rarely collected; amphi-Beringian, occurring in Formosa, Japan, China, Java, Himalayas, and western North America (Lamb, 1977).
Notes: collected by R. O'Clair (University of Alaska, Southeast). Similar in appearance to *S. tomentosum* but containing lobaric acid instead of stictic acid.

Stereocaulon saviczii Du Rietz
Abundance: 2, ?
Habitat: on rock, on lava flows.
Abundance in North America/Range: rare; amphi-Beringian species known from Japan, Kamchatka and Alaska.
Notes: southern range extension in North America.

Stereocaulon saxatile Magnusson
Abundance: 8, common.
Habitat: on rock from low elevation to the alpine.
Abundance in North America/Range: common; amphi-Atlantic.

Stereocaulon spathuliferum Vainio
Abundance: 2, ?
Habitat: in organic soil and on beach rocks.
Abundance in North America/Range: rare; boreal-arctic, probably circumpolar. Known from North America, Europe and Kamchatka.

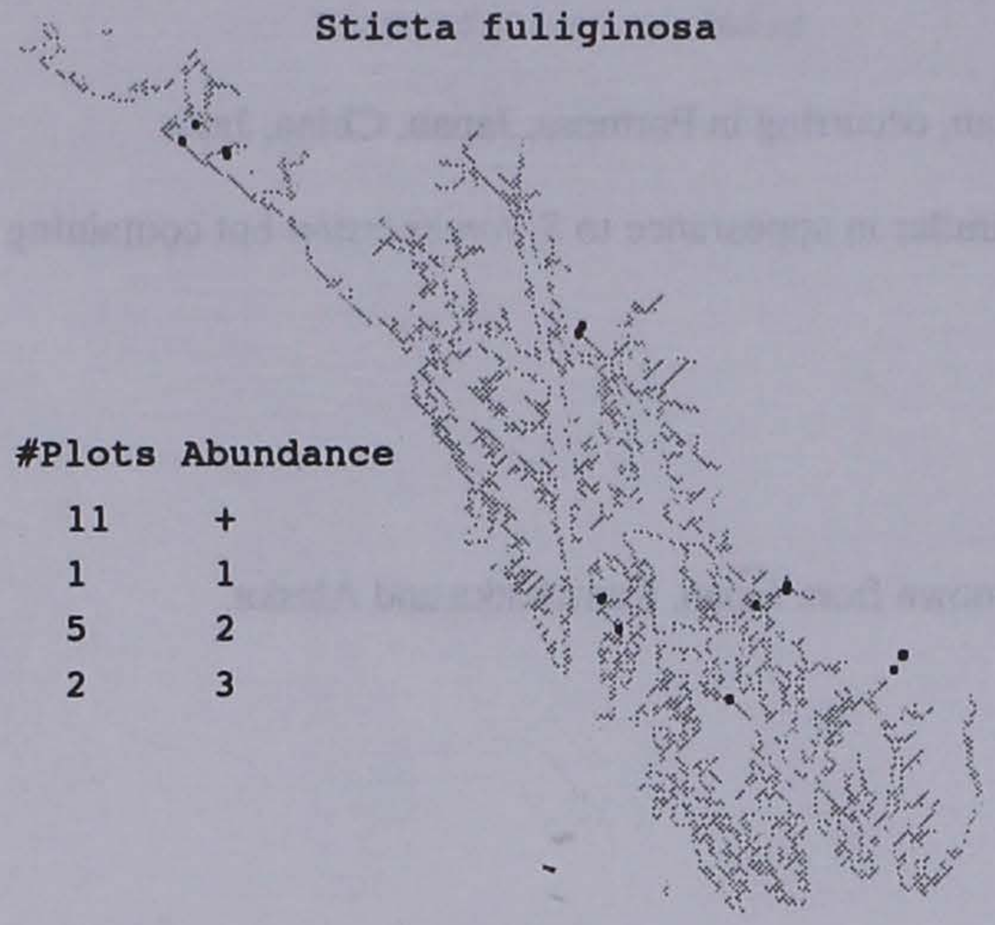
Stereocaulon sterile (Savicz) Lamb ex Krog
Abundance: 2, ?
Habitat: on rock with or without moss.
Abundance in North America/Range: rare-infrequent; northern amphi-Pacific distribution (Alaska to California and Kamchatka) (Lamb, 1977).

Stereocaulon subcoralloides (Nyl.) Nyl.
Abundance: 1, ?
Habitat: single collection from exposed rock face just above high tide line on east side of Chichagof Island.
Abundance in North America/Range: infrequent; circumpolar low arctic and boreal. Distribution in North America poorly understood.
Notes: southeast range extension

Stereocaulon symphycheilum Lamb
Abundance: 3, ?
Habitat: on rock, soil, on lava flows; low elevations to alpine.
Abundance in North America/Range: rare; circumpolar low arctic and boreal. Distribution poorly known. Known from Scandinavia, Kamchatka, Alaska and Quebec.
Notes: significant southern range extension.

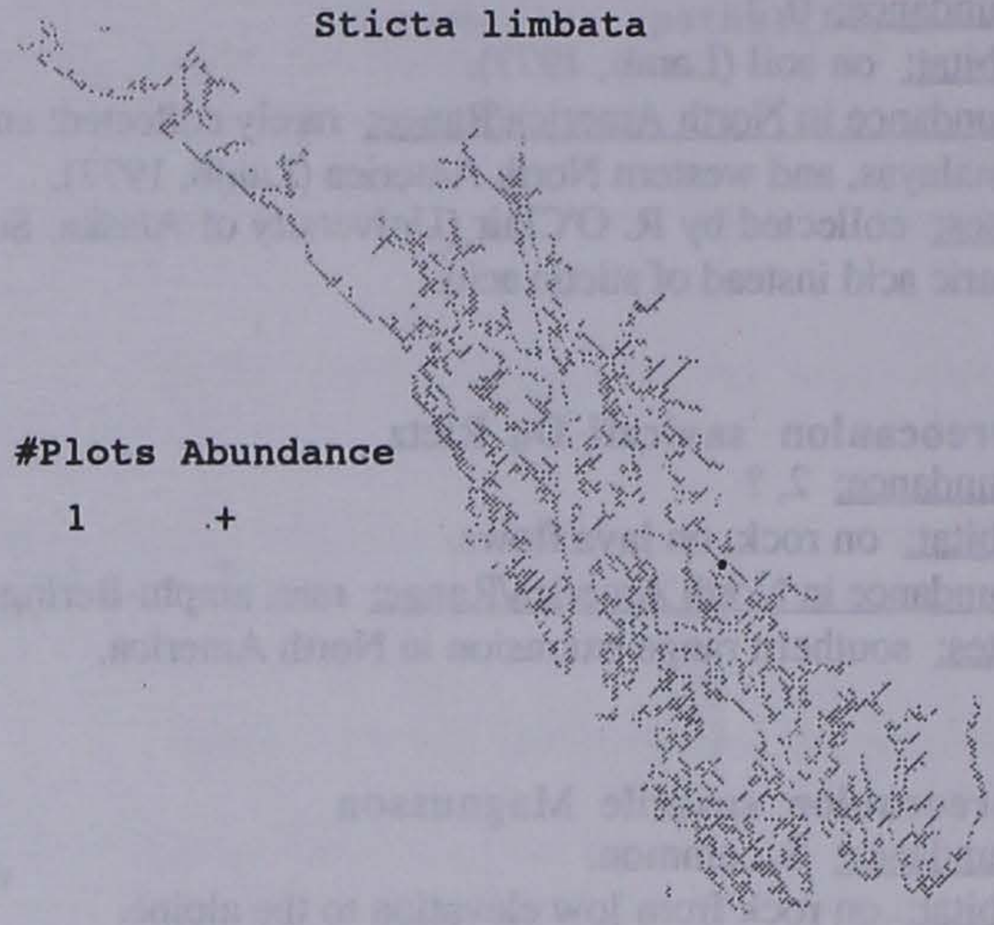
Stereocaulon tomentosum Fr.
Abundance: 3, ?
Habitat: in soil among mosses.
Abundance in North America/Range: abundant; circumpolar low arctic and boreal.

Sticta fuliginosa



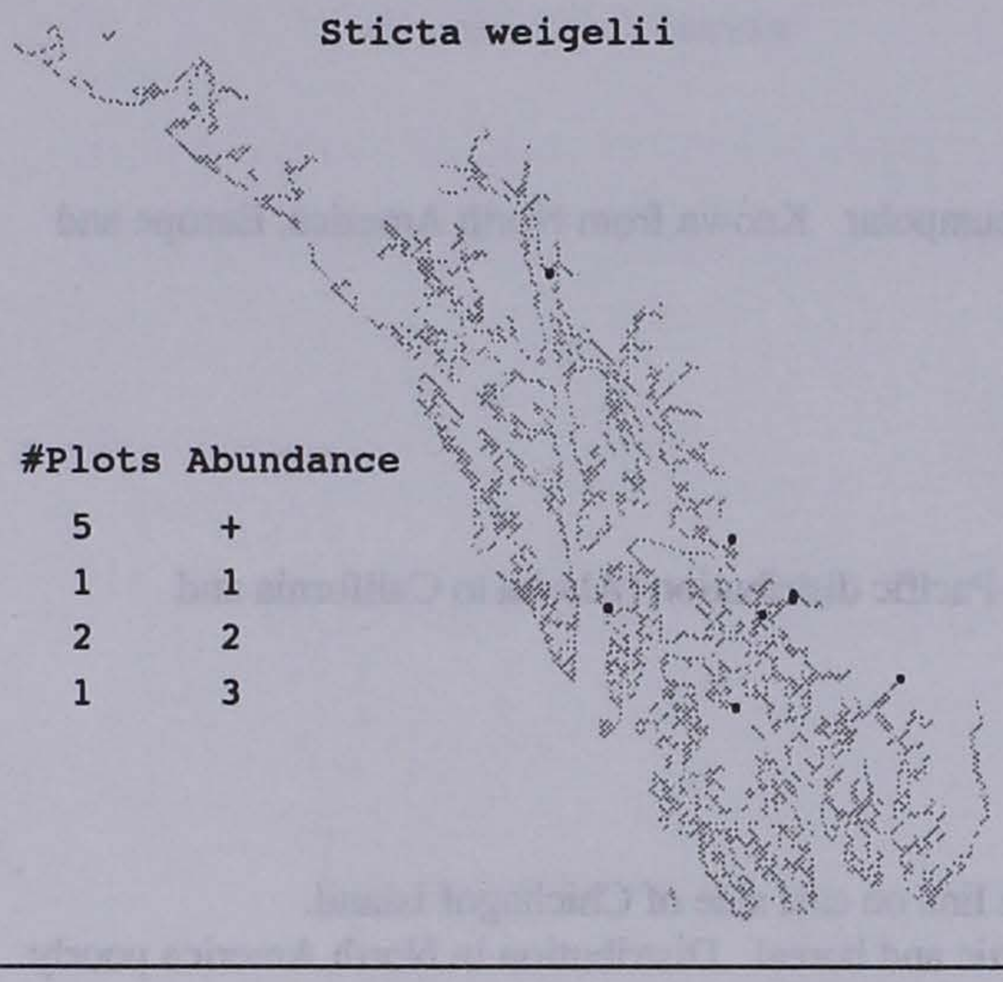
#Plots	Abundance
11	+
1	1
5	2
2	3

Sticta limbata



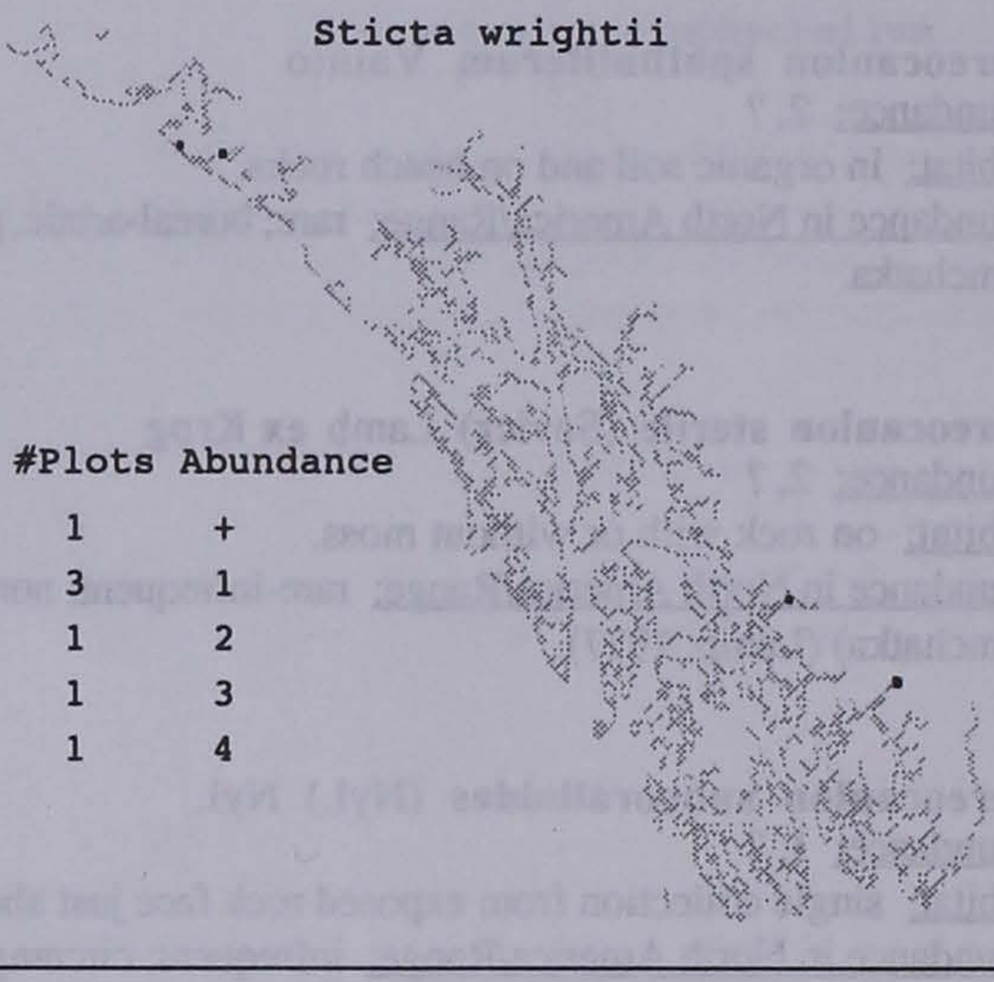
#Plots	Abundance
1	+

Sticta weigelii



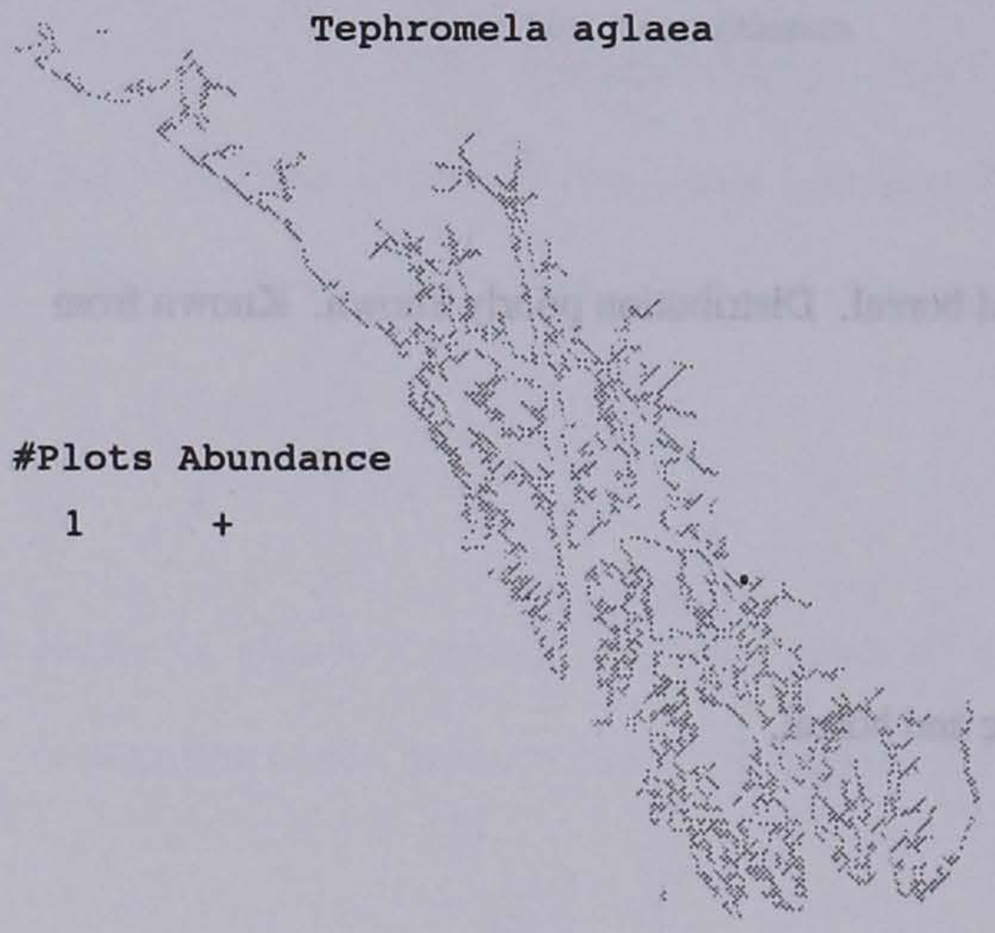
#Plots	Abundance
5	+
1	1
2	2
1	3

Sticta wrightii



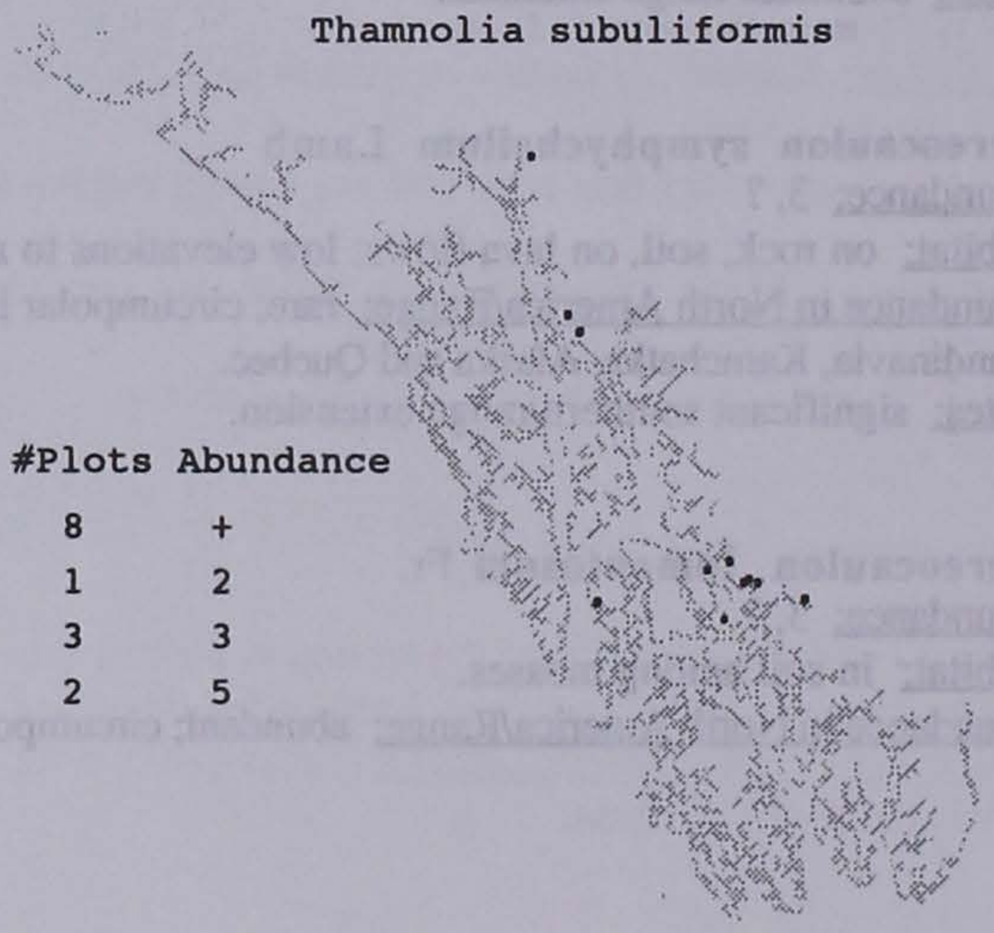
#Plots	Abundance
1	+
3	1
1	2
1	3
1	4

Tephromela aglaea



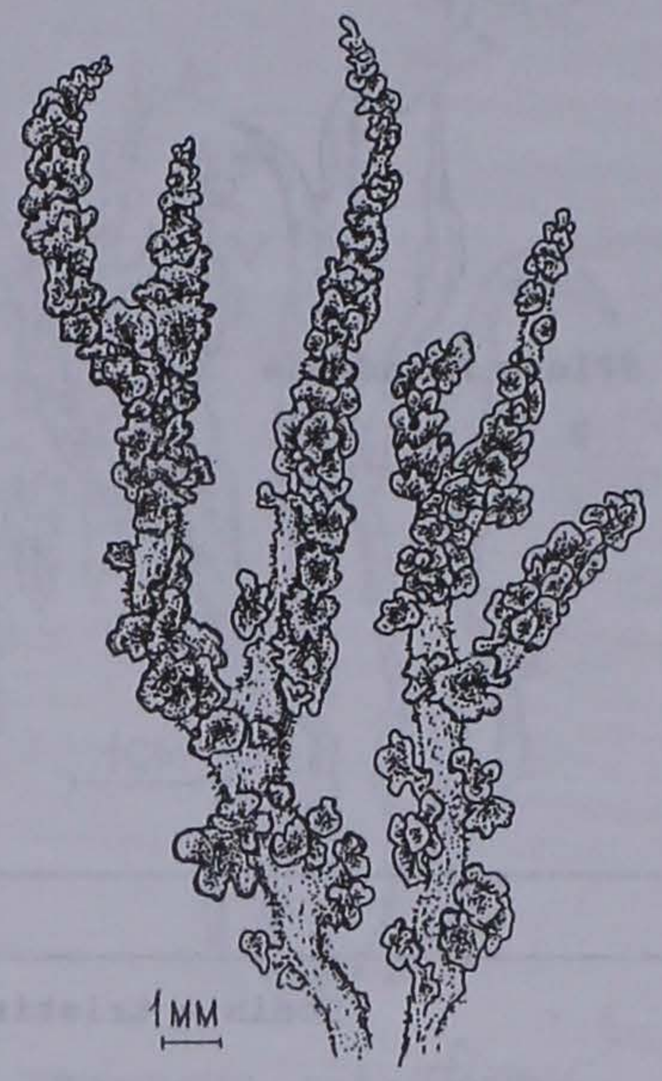
#Plots	Abundance
1	+

Thamnolia subuliformis



#Plots	Abundance
8	+
1	2
3	3
2	5

Stereocaulon vesuvianum Pers.
Abundance: 5, common
Habitat: on rock and soil on lava flows, along lake shorelines and in the alpine.
Abundance in North America/Range: common; circumpolar low arctic and boreal.



Stereocaulon vesuvianum

Sticta arctica Degel.
Abundance: 0, infrequent.
Habitat: grows intermingled with moss and other lichens (Krog, 1968).
Abundance in North America/Range: infrequent but widespread; amphi-Beringian from Siberia, Kamchatka, Alaska and arctic Canada.
Notes: reported from Mt. Roberts, Juneau area (Krog, 1968). A small, easily overlooked lichen.

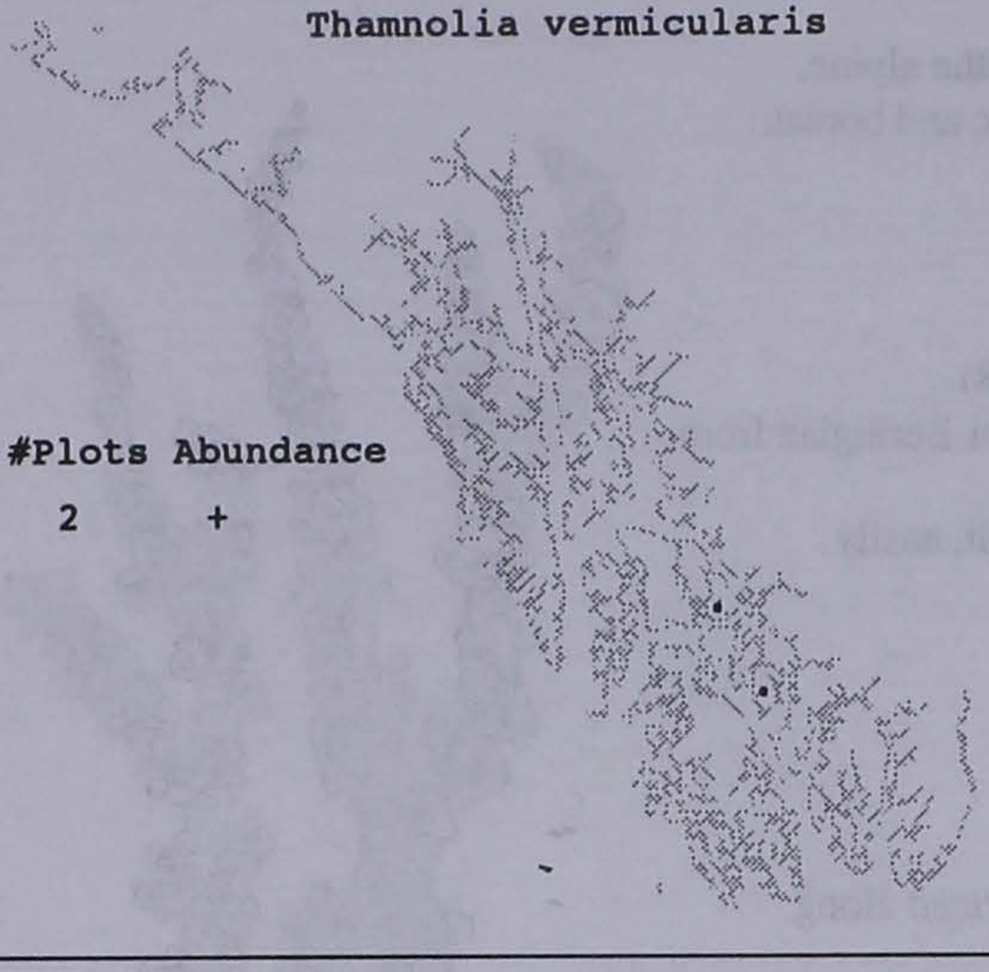
Sticta fuliginosa (Hoffm.) Ach.
Sensitivity: 10.
Abundance: 19, common.
Habitat: over deciduous trees (*Populus*), shrubs (*Alnus, Malus*) and *Picea* along beaches and rivers, especially on the mainland. Low elevations.
Abundance in North America/Range: incompletely circumpolar, Alaska to California.

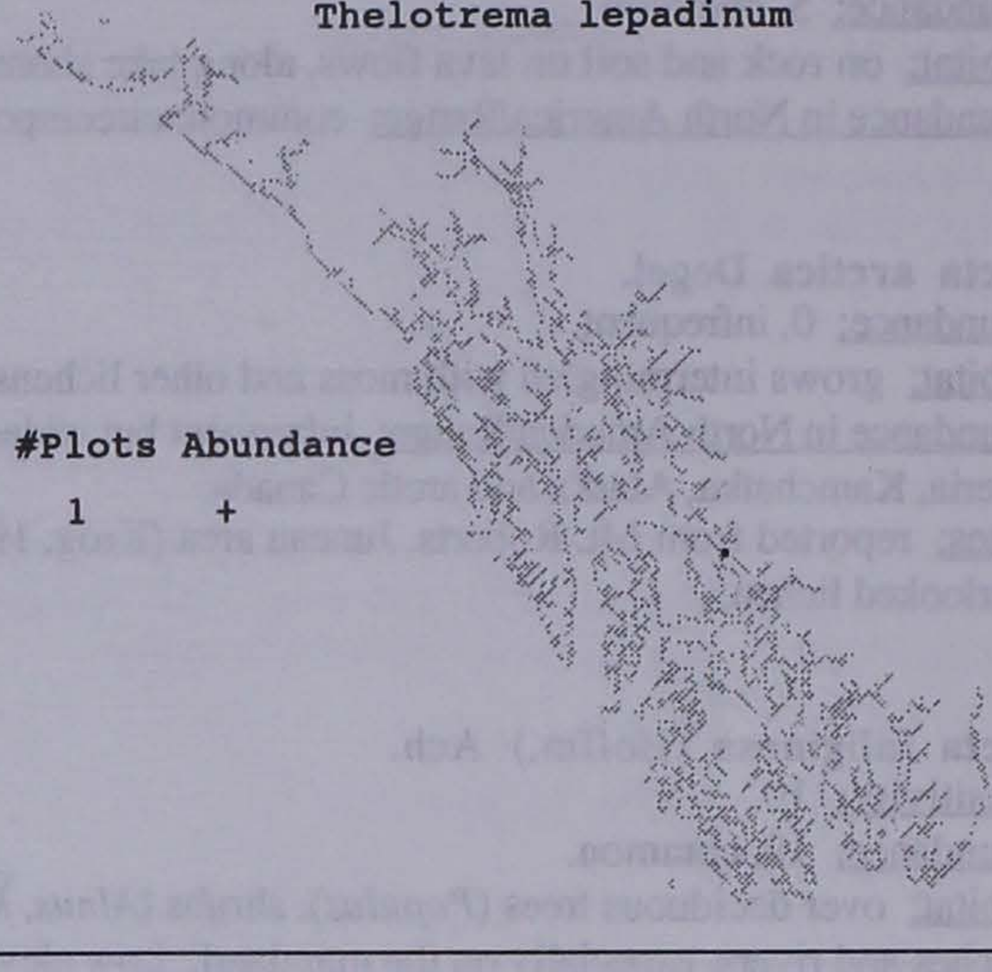
Sticta limbata (Sm.) Ach.
Sensitivity: 8.6-10.
Abundance: 1, rare.
Habitat: single collection was from the branches of *Tsuga heterophylla* on a small marine island. In British Columbia this lichen occurs over deciduous trees and especially mossy rock in open coast forests at lower elevations.
Abundance in North America/Range: common; Alaska to California and southern Appalachians in North America, common in Europe and found in western Eurasia.

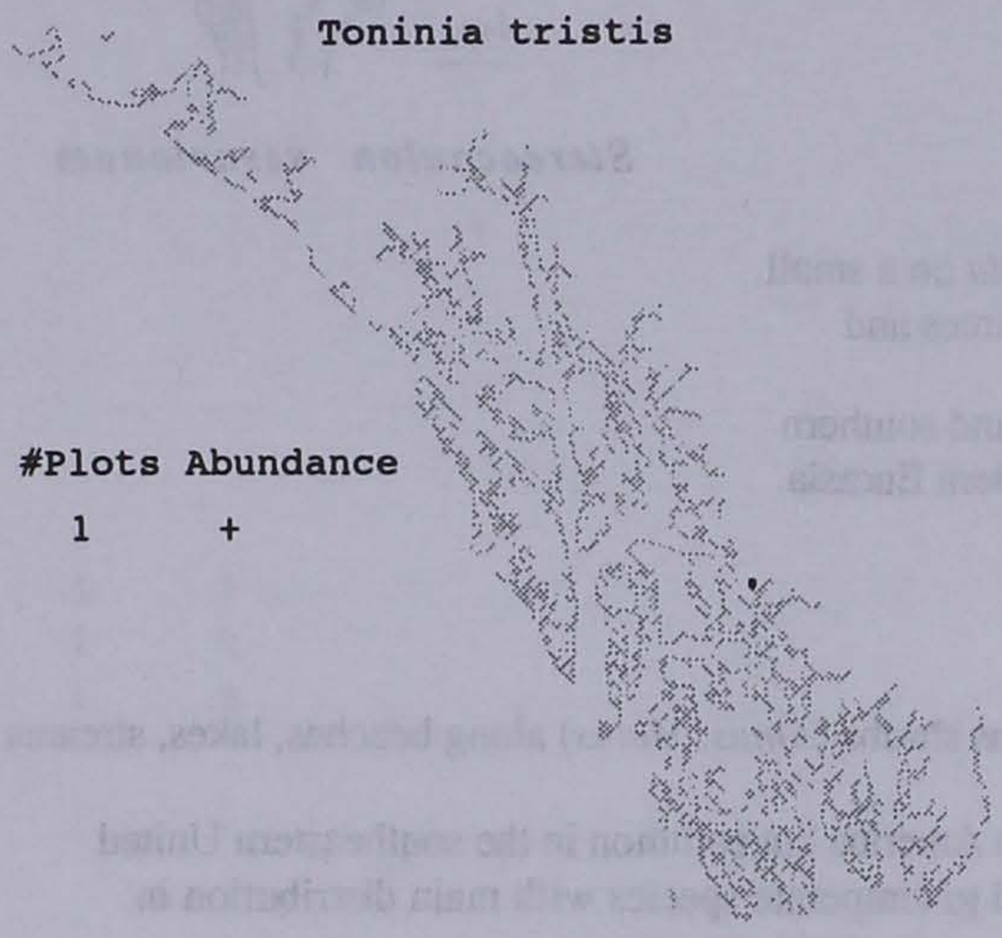
Sticta weigelii (Ach.) Vainio
Abundance: 9, common.
Habitat: over branches of spruce, other conifers (*Thuja*), and deciduous shrubs (*Alnus, Malus*) along beaches, lakes, streams and rivers; widespread at low elevations.
Abundance in North America/Range: infrequent-rare in western North America but common in the southeastern United States; also known from eastern Eurasia and South America. Tropical to temperate species with main distribution in Appalachians, disjunct in Alaska.

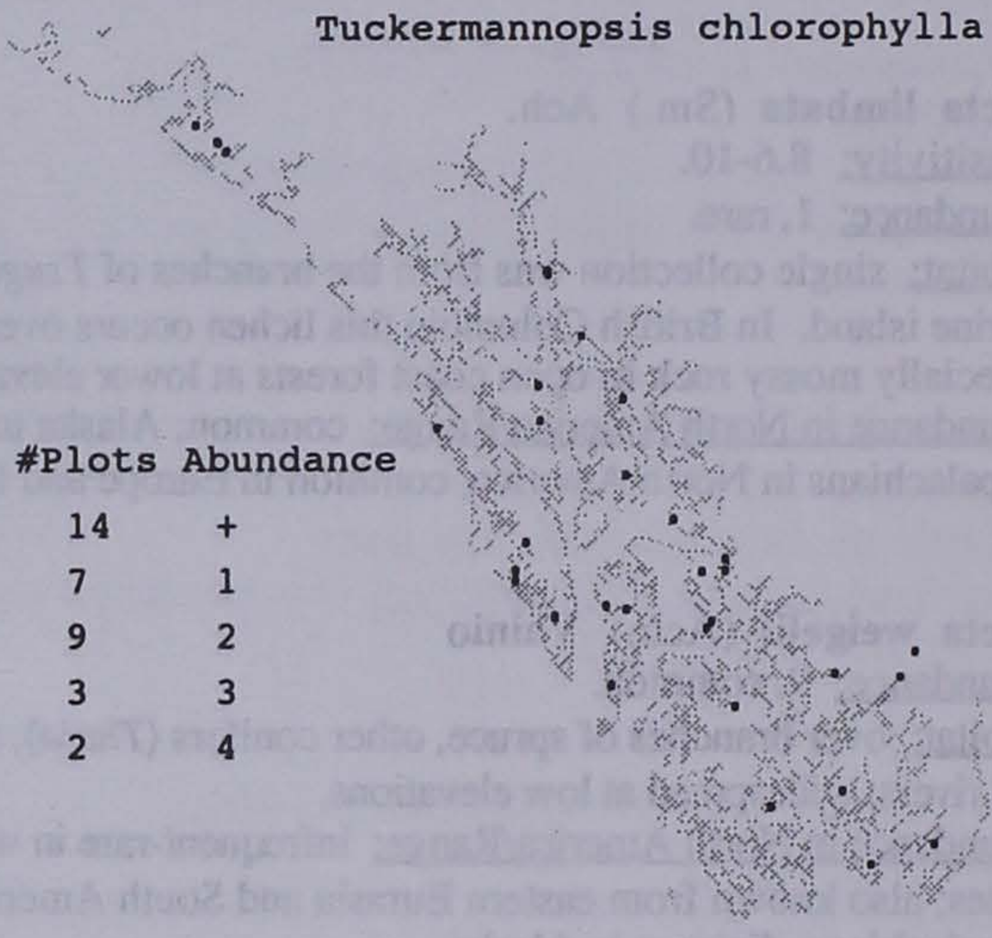
Sticta wrightii Tuck.
Abundance: 7, infrequent.
Habitat: on branches of spruce and deciduous trees and shrubs (*Populus, Alnus, Salix*) in spruce and mixed spruce/deciduous stands on mainland rivers, e.g. the Stikine, Unuk and Arnklen.
Abundance in North America/Range: rare; western North America and eastern Eurasia, Alaska to British Columbia in North America.

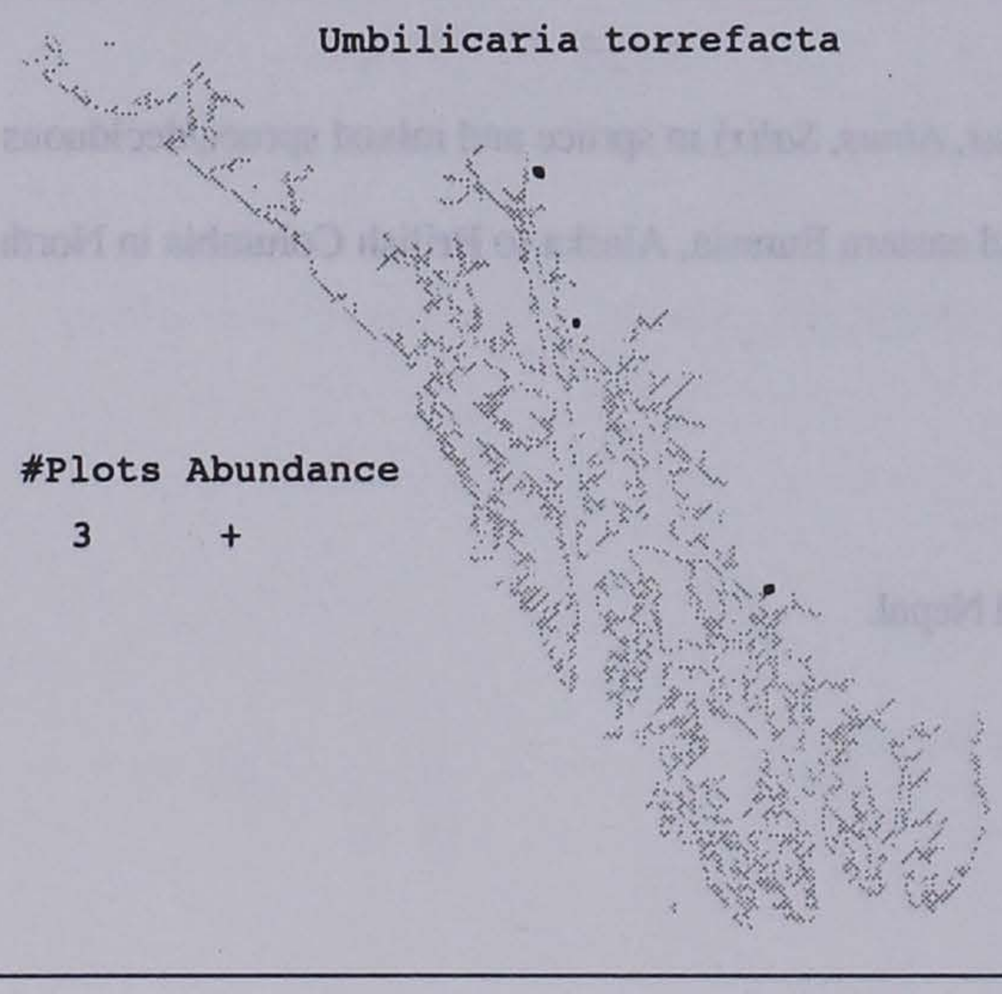
Tephromela aglaea (Sommerf.) Hertel & Rambold
Abundance: 1, ?
Habitat: on rock in the alpine.
Abundance in North America/Range: Northern Hemisphere Arctic and Nepal.

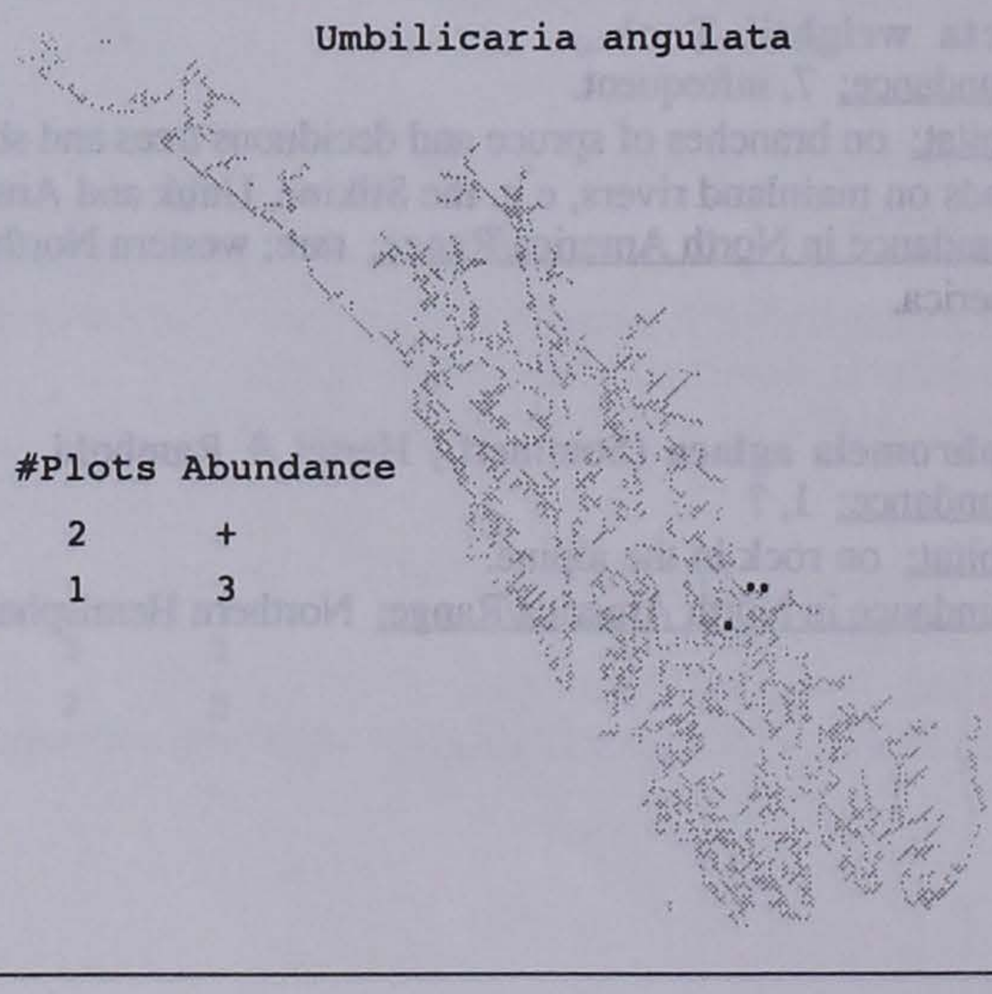

Thamnolia vermicularis
#Plots Abundance
2 +


Thelotrema lepadinum
#Plots Abundance
1 +


Toninia tristis
#Plots Abundance
1 +

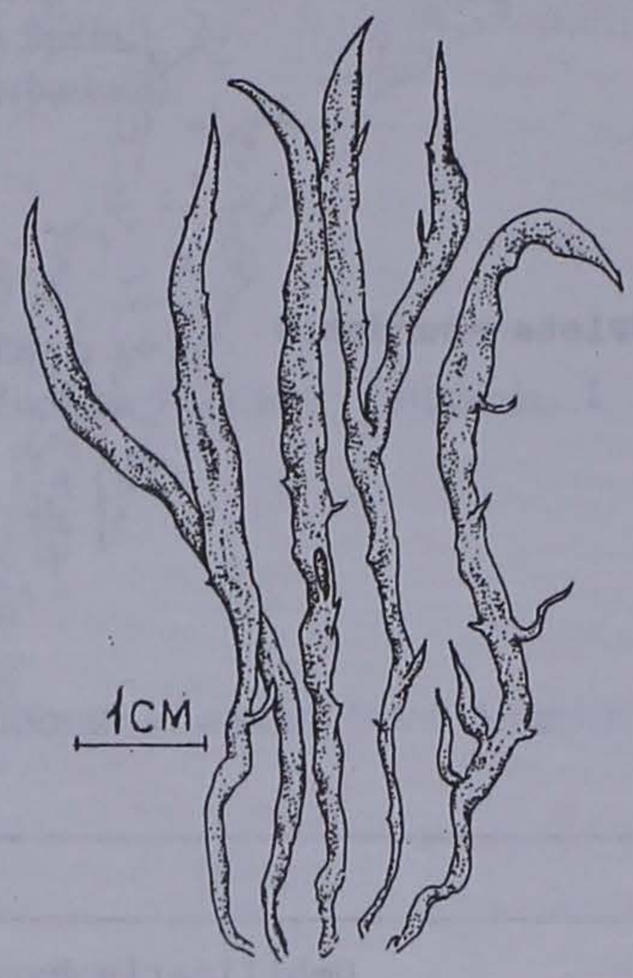

Tuckermannopsis chlorophylla
#Plots Abundance
14 +
7 1
9 2
3 3
2 4


Umbilicaria torrefacta
#Plots Abundance
3 +


Umbilicaria angulata
#Plots Abundance
2 +
1 3

Thamnolia subuliformis (Ehrh.) Culb.
Abundance: 11, common.
Habitat: over humus with other lichens and mosses in the alpine and subalpine.
Abundance in North America/Range: abundant; circumpolar and bipolar arctic-alpine, but rare in the Southern Hemisphere.

Thamnolia vermicularis (Sw.) Ach. ex Schaerer
Abundance: 2, infrequent
Habitat: over humus with other lichens and mosses in the alpine and subalpine.
Abundance in North America/Range: abundant; circumpolar and bipolar arctic-alpine and the dominant *Thamnolia* in the Southern Hemisphere (Thomson, 1984).
Notes: also expected on gravel (Thomson, 1984).



Thamnolia subuliformis

Thelotrema lepadinum (Ach.) Ach.
Sensitivity: declining in Britain due to air pollution and habitat disturbance (Purvis et al., 1992).
Abundance: 1, ?
Habitat: on bark of *Alnus*.. Expected also on bark of other deciduous trees (Hale, 1988).
Abundance in North America/Range: common; widespread in North America and Europe and probably cosmopolitan.

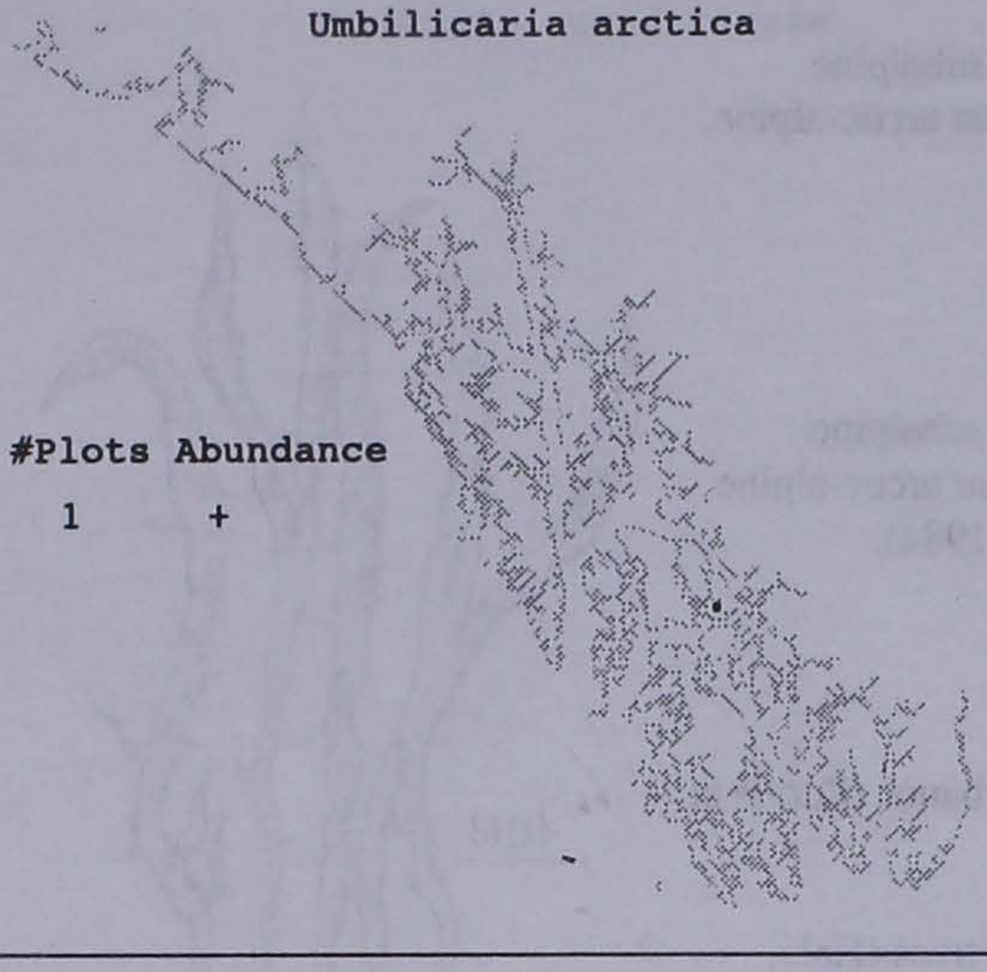
Toninia tristis (Th. Fr.) Th. Fr.
Abundance: 1, ?
Habitat: on soil in the alpine.
Abundance in North America/Range: infrequent; known from western North America (Alaska to New Mexico), Greenland and Europe.
Notes: in the Arctic occurring on calcareous soil, rocks and over mosses (Thomson, 1979).

Trapeliopsis flexuosa (Fr.) Coppins & P. James
Abundance: 0, ?
Habitat: on slate rock.
Abundance in North America/Range: widespread in North America and Europe.
Notes: reported from Wrangell, Alaska (Herre, 1919). Expected also on wood, plant debris and sandstone rocks (Purvis et al., 1992).

Tremolecia atrata (Ach.) Hertel
Abundance: 1, ?
Habitat: on rock in the mainland alpine.
Abundance in North America/Range: cosmopolitan in arctic-alpine conditions in both Hemispheres.

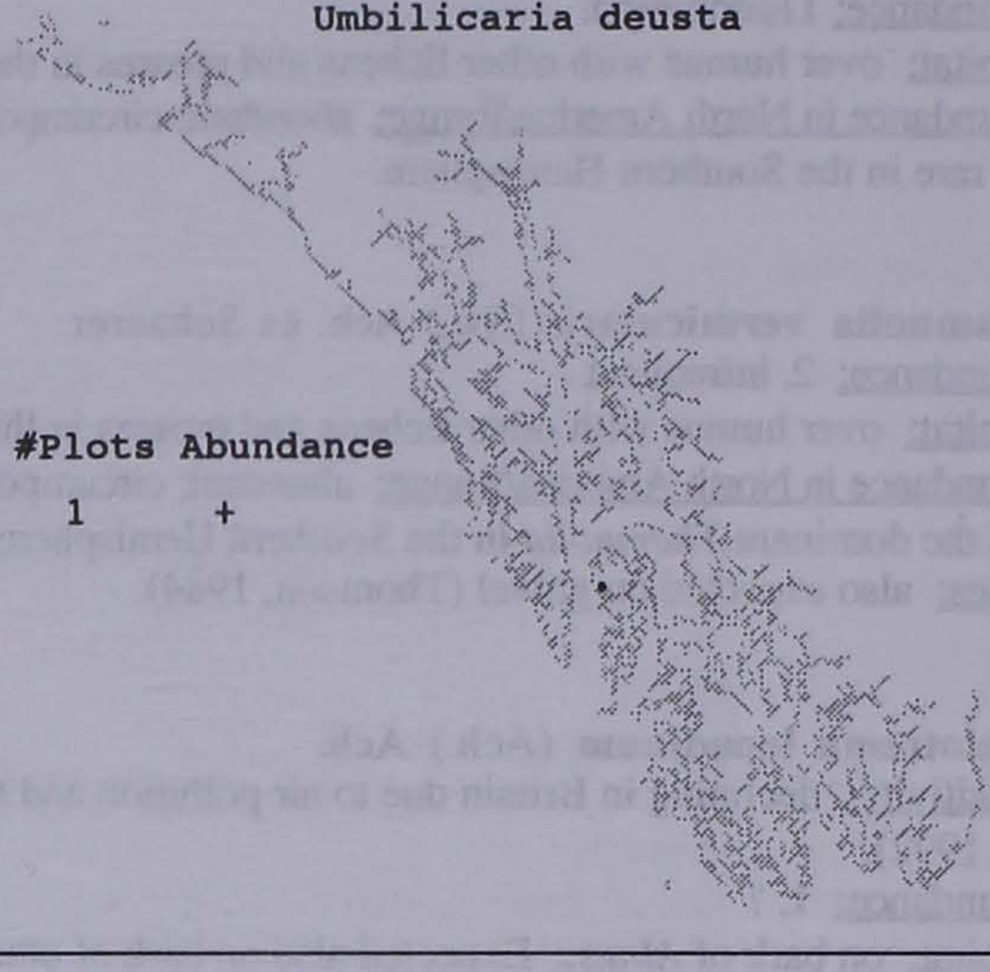
Tuckermannopsis chlorophylla (Willd. in Humb.) Vainio
Sensitivity: 2-10.
SO_2 Sensitivity: sensitive, 10-30/-.
Abundance: 33, abundant.
Habitat: over coniferous and deciduous trees and shrubs in low elevation stands near water (beaches, lakes, rivers, streams).
Abundance in North America/Range: abundant; circumpolar arctic-alpine, Alaska to California in western North America.

Umbilicaria arctica



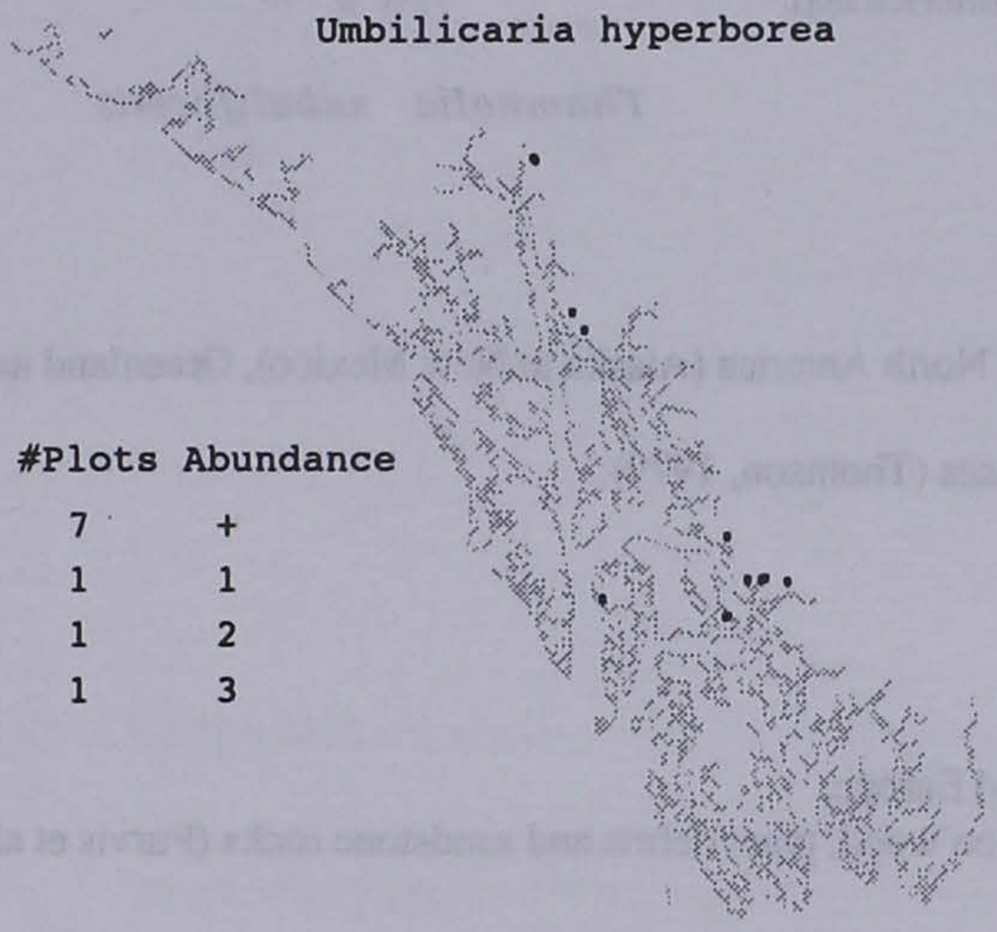
#Plots	Abundance
1	+

Umbilicaria deusta



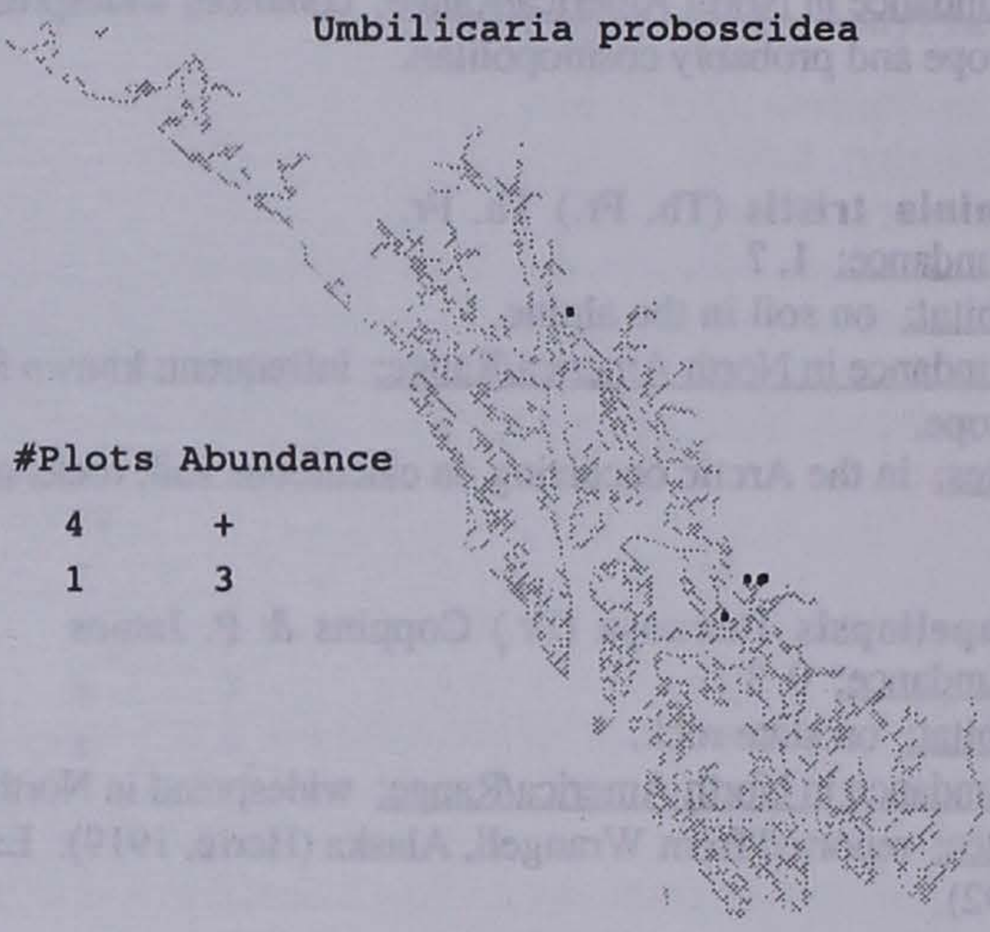
#Plots	Abundance
1	+

Umbilicaria hyperborea



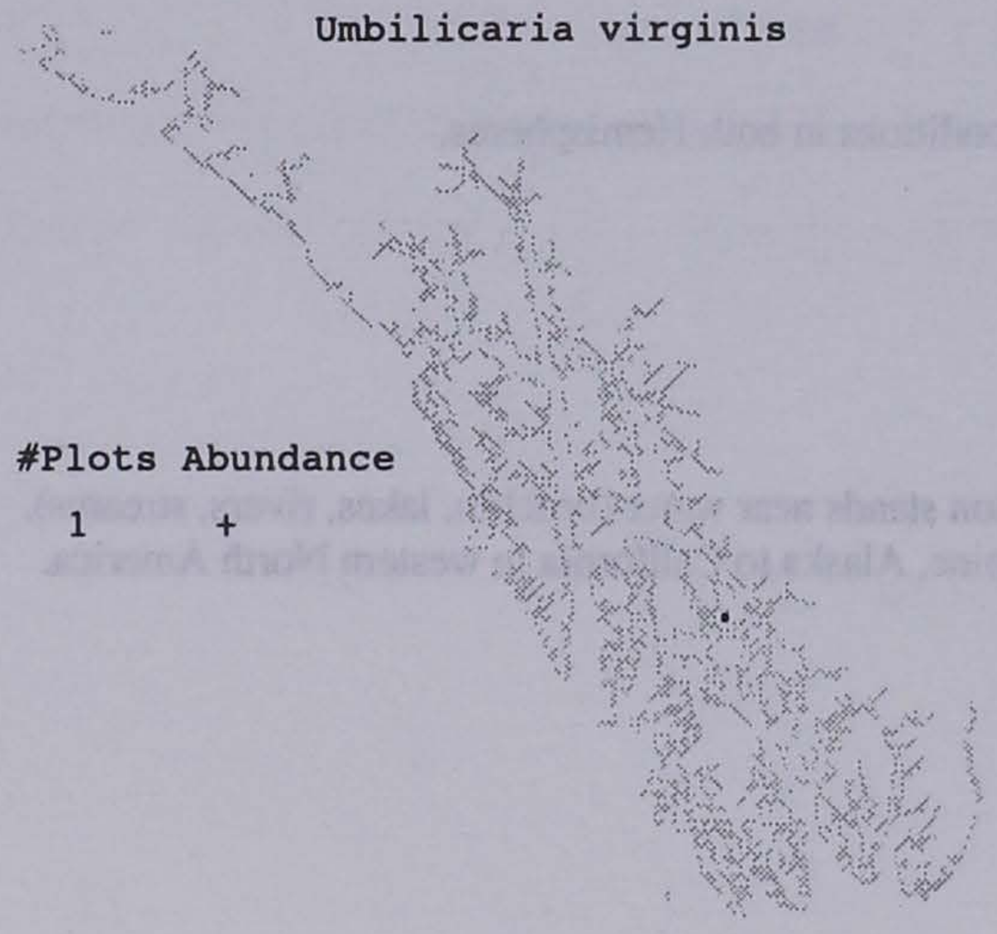
#Plots	Abundance
7	+
1	1
1	2
1	3

Umbilicaria proboscidea



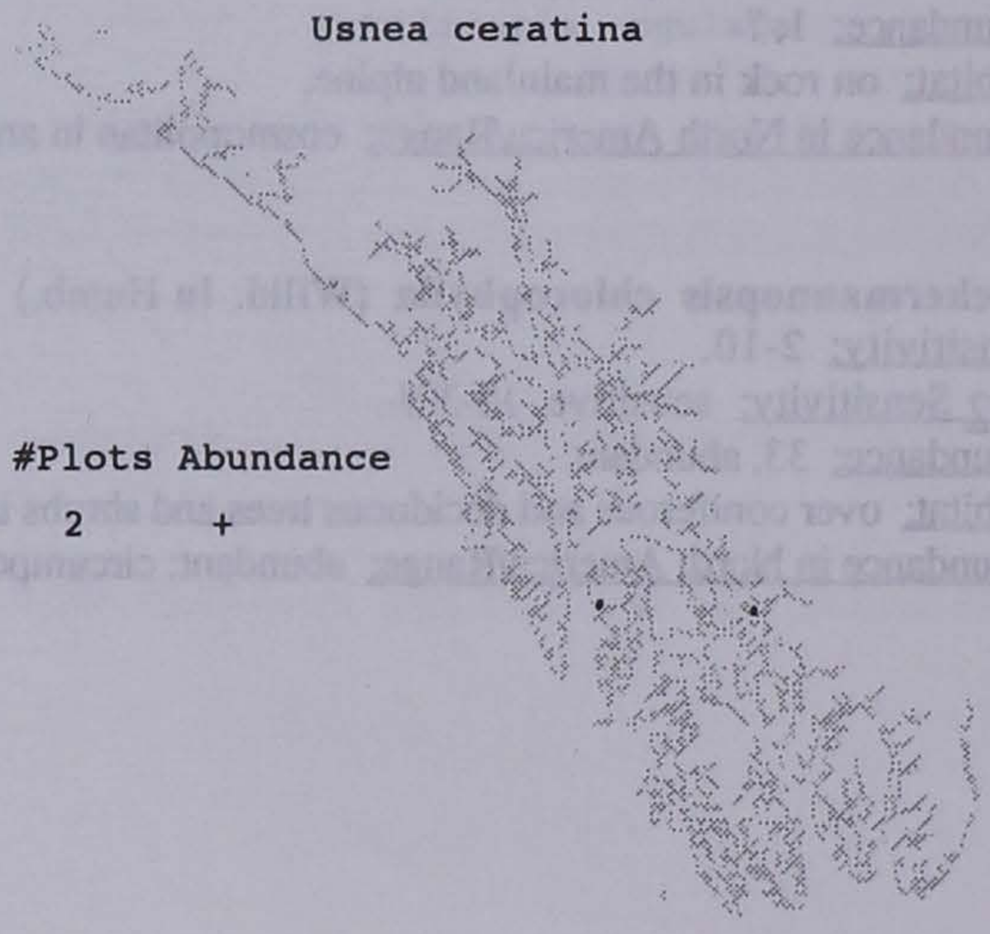
#Plots	Abundance
4	+
1	3

Umbilicaria virginis



#Plots	Abundance
1	+

Usnea ceratina



#Plots	Abundance
2	+

Tuckermannopsis merrillii (Du Rietz) Hale
Abundance: 0, rare.
Habitat: on *Pinus contorta* in open muskeg.
Abundance in North America/Range: frequent in British Columbia , Washington and Oregon ; western North America (from southeast Alaska to California). Generally absent outside North America, but known in Spain.
Notes: collected from Douglas Island by R. O'Clair (University of Alaska, Southeast herbarium).

Umbilicaria angulata Tuck.
Abundance: 3, common?
Habitat: over rock in alpine and subalpine areas and at low elevations near glacial termini.
Abundance in North America/Range: frequent to uncommon; western North American endemic, Alaska to California.

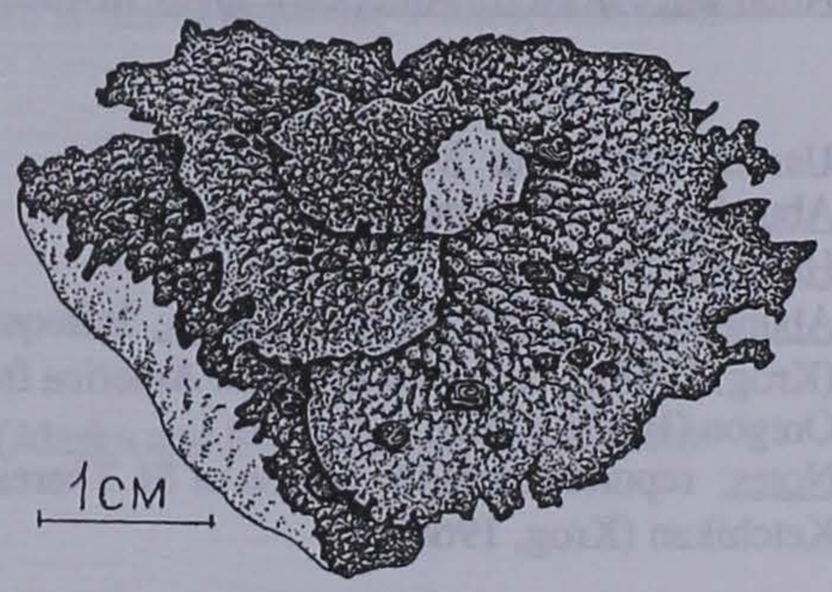
Umbilicaria arctica (Ach.) Nyl.
Abundance: 2, ?
Habitat: alpine and subalpine rocks.
Abundance in North America/Range: common; circumpolar arctic-alpine, Alaska to California in western North America.

Umbilicaria cylindrica (L.) Del. **ex** Duby
Abundance: 0, ?
Habitat: over rock in subalpine and alpine localities in British Columbia (Goward et al., 1992).
Abundance in North America/Range: common; circumpolar arctic-alpine, Alaska to Colorado in western North America.
Notes: reported from Mt. Roberts, near Juneau (Krog, 1968).

Umbilicaria deusta (L.) Baumg.
Abundance: 1, common?
Habitat: over acid rock in alpine and subalpine sites, especially in water channels on the rock face (Thomson, 1984).
Abundance in North America/Range: common; circumpolar arctic and boreal, south in western North America to Arizona.

Umbilicaria hirsuta (Sw. **ex** Westr.) Hoffm.
Abundance: 0, ?
Habitat: on exposed acid rock (Thomson, 1984).
Abundance in North America/Range: rare; low arctic to temperate circumpolar species known from North America (Alaska, Northwest Territories, California, Montana, Colorado, Vermont, New Hampshire). Europe, Greenland, and Kamchatka.
Notes: rare worldwide. Reported from the Muir Glacier area (Cummings, 1904).

Umbilicaria hyperborea (Ach.) Hoffm.
Abundance: 10, common.
Habitat: over rock in alpine and subalpine areas and at low elevations near glacial termini.
Abundance in North America/Range: abundant; circumpolar arctic and boreal, Alaska to Mexico.



Umbilicaria hyperborea

Umbilicaria proboscidea (L.) Schrader
Abundance: 5, common.
Habitat: over rock in alpine areas and at low elevations near glacial termini.
Abundance in North America/Range: abundant; circumpolar arctic-alpine, Alaska to Oregon.

Umbilicaria rigida (Du Rietz) Frey
Abundance: 0, ?
Habitat: over acid rock and bird perches (Thomson, 1984).
Abundance in North America/Range: rare; arctic-alpine and probably circumpolar. Known from Alaska, Yukon, Alberta, British Columbia and Washington in North America, and from Scandinavia, Greenland and Kamchatka.
Notes: reported from Mendenhall Valley (McCullough, 1965).

Umbilicaria torrefacta (Lightf.) Schrader
Abundance: 4, common.
Habitat: at low elevations over rock near glacial termini; also in the alpine and subalpine in British Columbia (Goward et al., 1992).
Abundance in North America/Range: abundant; circumpolar arctic-alpine, Alaska to Mexico.

Umbilicaria vellea (L.) Ach.
Abundance: 0, ?
Habitat: expected on open or shaded cliffs.
Abundance in North America/Range: abundant; cosmopolitan arctic to temperate, south to Mexico in North America. and generally distributed throughout the entire continent.
Notes: reported from Granite Basin near Juneau (Krog, 1968).

Umbilicaria virginis Schaerer
Abundance: 1, ?
Habitat: over rock in the alpine.
Abundance in North America/Range: circumpolar, alpine and arctic, south to Mexico in western North America.
Notes: In southern Canada and lower United States occurring only at the highest altitudes and therefore absent in the eastern United States. Mexican population limited to high volcanic peaks (Llano, 1950).

Usnea ceratina Ach.
Sensitivity: 7.8-9.1.
SO_2 Sensitivity: sensitive,35/-.
Abundance: 2, infrequent.
Habitat: pendent on conifer branches and deciduous shrubs near water (beach, lake, or streams).
Abundance in North America/Range: frequent and widespread in western and eastern North America and Europe.

Usnea fibrillosa Mot.
Abundance: 0, infrequent?
Habitat: on trees.
Abundance in North America/Range: infrequent (?); boreal-temperate, known from Scandinavia, the Alps and North America (Krog, 1968). Collected in North America from Nova Scotia, New Brunswick, Ontario, Alaska, New Hampshire, Michigan, Oregon (Herre, 1980).
Notes: reported from the Shrine of St. Therese near Juneau, from the Sitka National Monument and from Ward Lake near Ketchikan (Krog, 1968).

Usnea filipendula Stirton
Sensitivity: 6-10.
SO_2 Sensitivity: sensitive, 10-30/.
Abundance: 3, infrequent.
Habitat: on coniferous trees and deciduous shrubs.
Abundance in North America/Range: common; circumpolar low arctic and boreal.

Usnea fragilescens Hav. **ex** Lynge **(sensu** Brodo)
Abundance: 1, infrequent-rare.
Habitat: single collection from *Pinus contorta* on Dog Island, south of Ketchikan.
Abundance in North America/Range: infrequent(?); from coastal and wet interior British Columbia and southeast Alaska in North America and oceanic Europe (western Britain, Norway, France).

Usnea glabrata (Ach.) Vainio
Abundance: 0, rare.
Habitat: coastal forests.
Abundance in North America/Range: rare; circumpolar low arctic and boreal. Found across southern Canada and from southeastern Alaska, coastal and wet interior British Columbia, south to California and west to Montana, Colorado and New Mexico (Herre, 1980).
Notes: reported from Sitka National Monument (Krog, 1968).

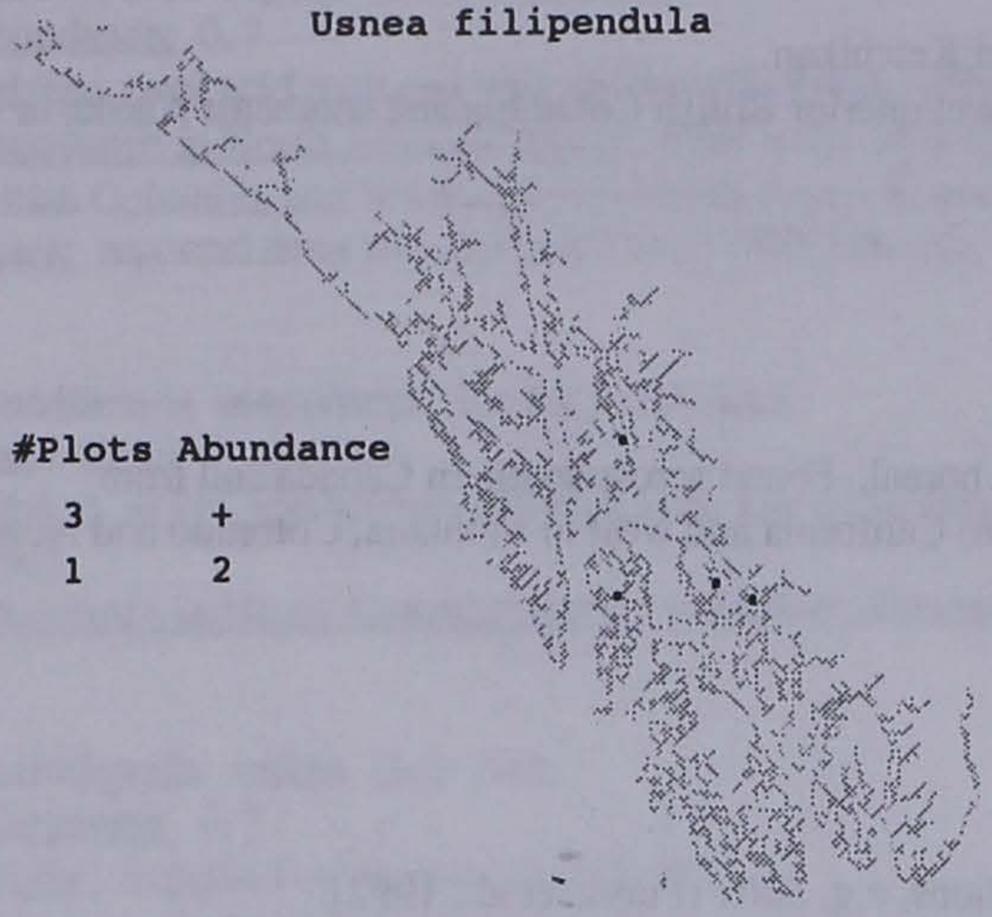
Usnea glabrescens (Nyl. ex Vainio) Vainio
Abundance: 0, rare.
Habitat: coastal forests. In Europe on deciduous trees in damp situations, e.g. *Salix* (Purvis et al., 1992).
Abundance in North America/Range: infrequent?; boreal-temperate, probably circumpolar, known from North America (coastal southeast Alaska to Oregon, also known from Maine) and northern and eastern Europe (Herre, 1980).
Notes: reported from Sitka National Monument (Krog, 1968).

Usnea hirta (L.) Weber **ex** Wigg.
Sensitivity: 5-10.
SO_2 Sensitivity: sensitive-intermediate, 30-80/-.
Abundance: 0, infrequent?
Habitat: On a wide variety of substrates including deciduous trees, conifers, old wood boards and fences, and rarely rocks.
Abundance in North America/Range: common; circumpolar. Widespread in boreal and temperate North America (south to Mexico and New England) and Europe.
Notes: reported from the Indian River Trail near Sitka (Krog, 1968).

Usnea lapponica Vainio
Abundance: 1, infrequent-rare.
Habitat: on *Alnus*.
Abundance in North America/Range: infrequent(?); in North America known from British Columbia, Yukon, Northwest Territories, California, Colorado, Montana, Oregon, Wyoming.
Notes: also reported from Sitka National Monument (Krog, 1968).

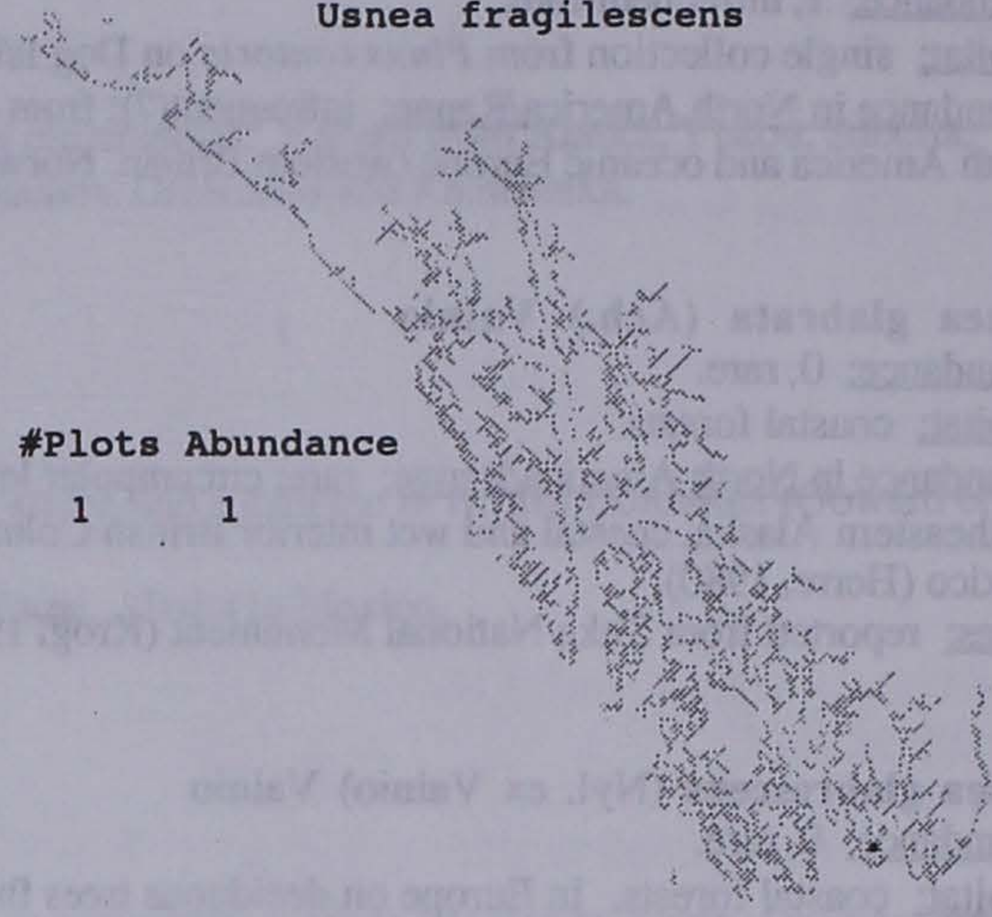
Usnea leucosticta Vainio
Abundance: 0, rare.
Habitat: coastal forests.
Abundance in North America/Range: rare, only a few reports in North America (Alaska and Mt. Rainier, Washington).
Notes: reported from Wrangell, Alaska (Motyka, 1936-38).

Usnea filipendula



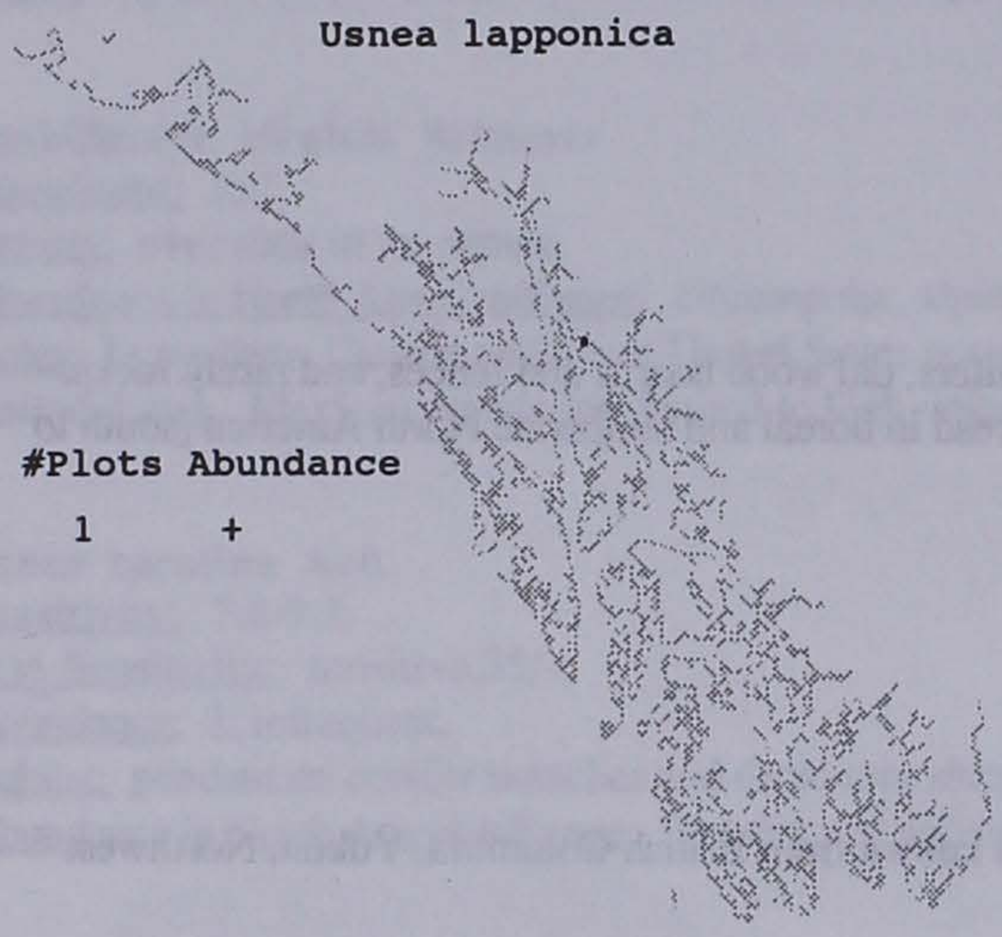
#Plots	Abundance
3	+
1	2

Usnea fragilescens



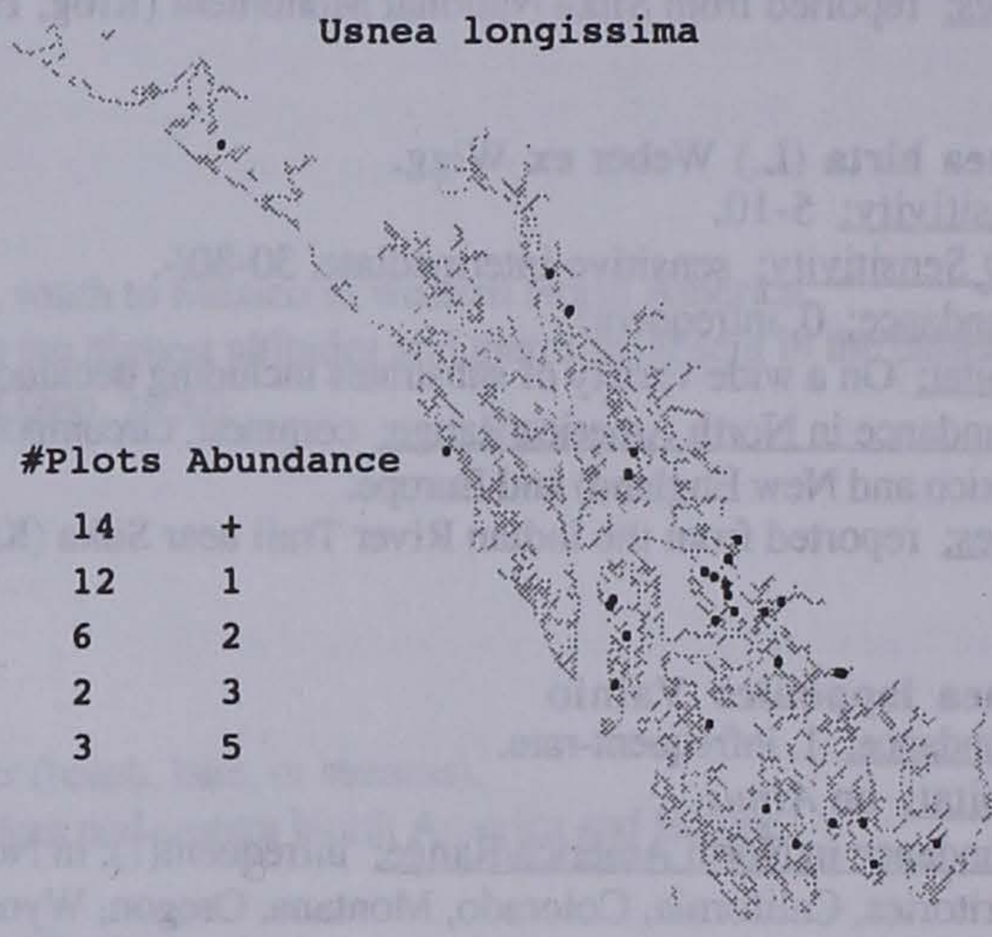
#Plots	Abundance
1	1

Usnea lapponica



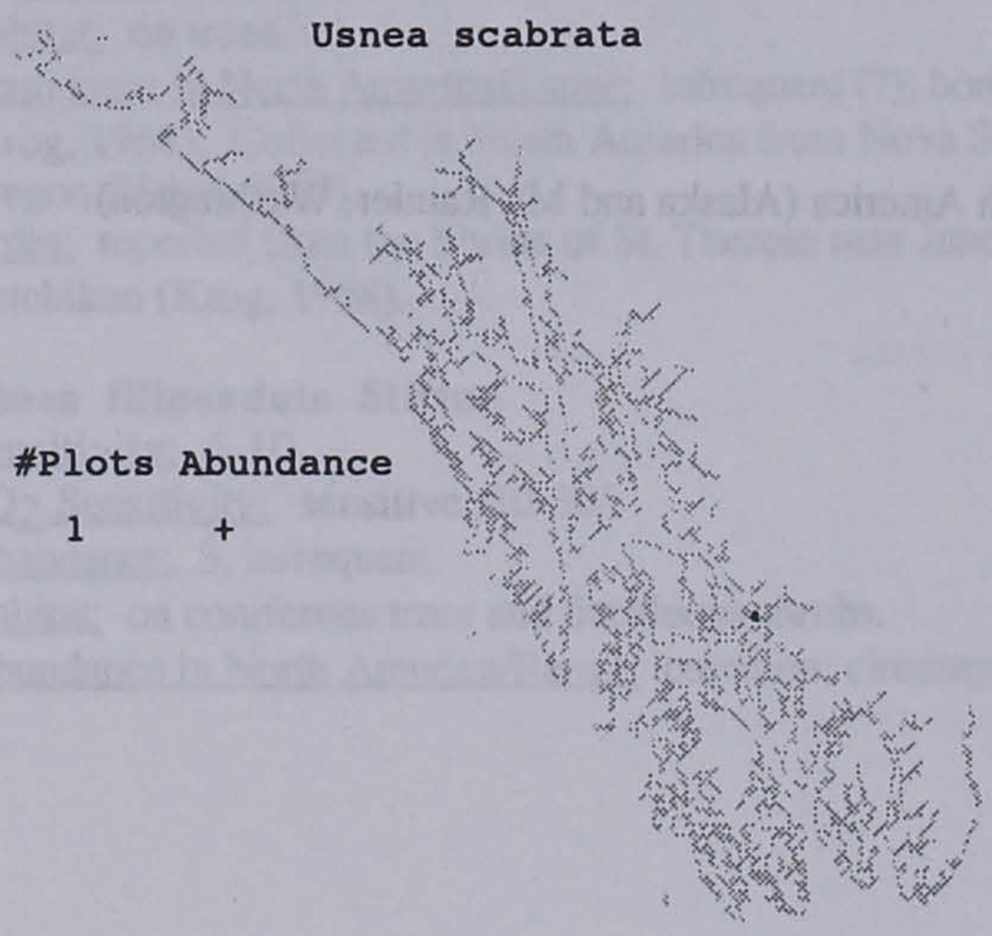
#Plots	Abundance
1	+

Usnea longissima



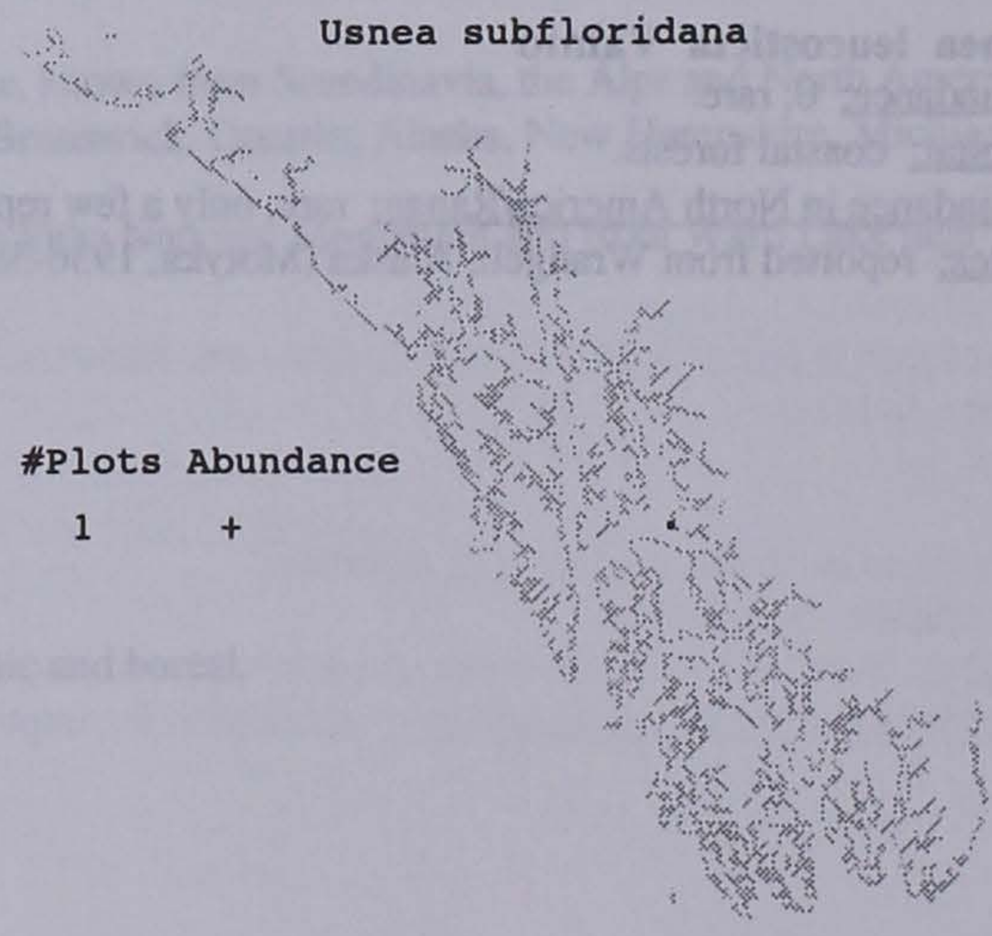
#Plots	Abundance
14	+
12	1
6	2
2	3
3	5

Usnea scabrata



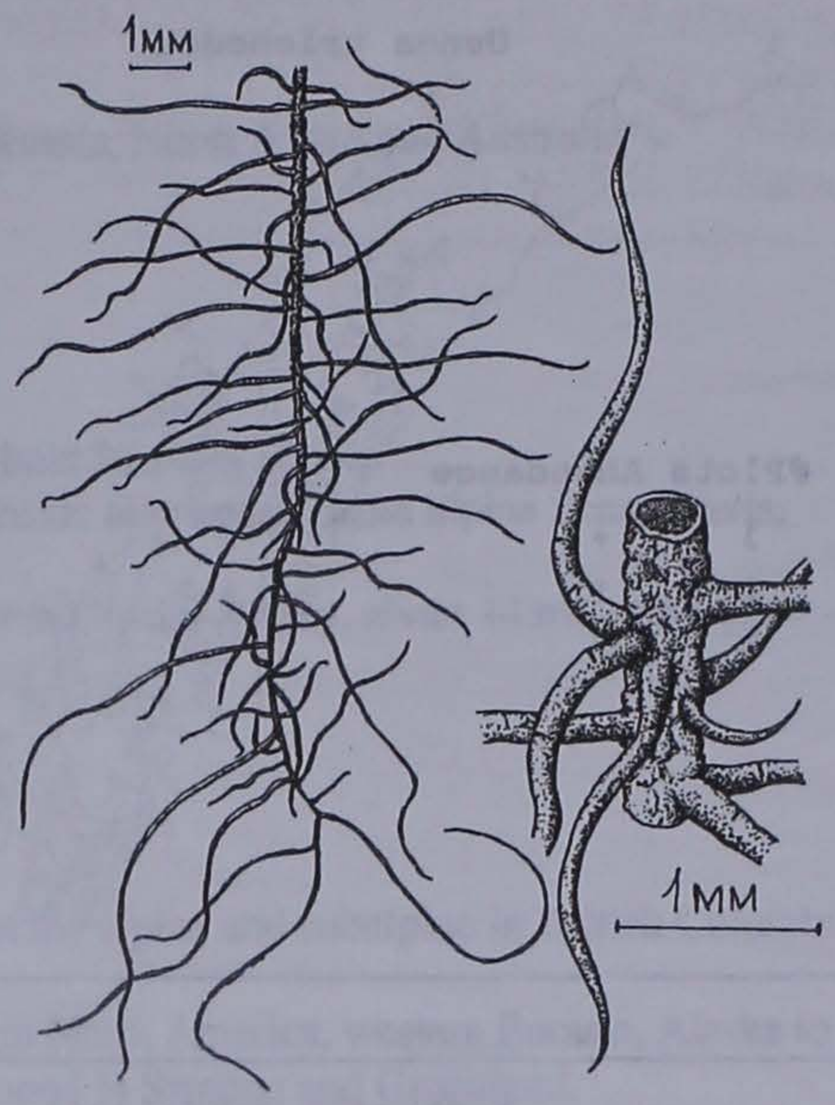
#Plots	Abundance
1	+

Usnea subfloridana



#Plots	Abundance
1	+

Usnea longissima Ach.
Sensitivity: 8.6-10.
Abundance: 33, abundant.
Habitat: pendent on branches of conifers and deciduous shrubs; in deciduous stands, spruce/deciduous stands, spruce, mixed conifer or *Pinus contorta* stands; most common along beaches and riparian areas.
Abundance in North America/Range: frequent; west coast North America (Alaska to central California), across northern North America and northern Europe.
Notes: has threatened or extinct status in most of its European range due to air pollution and habitat destruction, especially forestry.



Usnea longissima

Usnea scabiosa Mot.
Abundance: 0, rare.
Habitat: coastal forests.
Abundance in North America/Range: distribution/abundance uncertain as taxonomy needs more study (Hale and Cole, 1988). Across Canada and the western United States south to Mexico in North America (Herre, 1980).
Notes: reported from the Sitka National Monument (Krog, 1968).

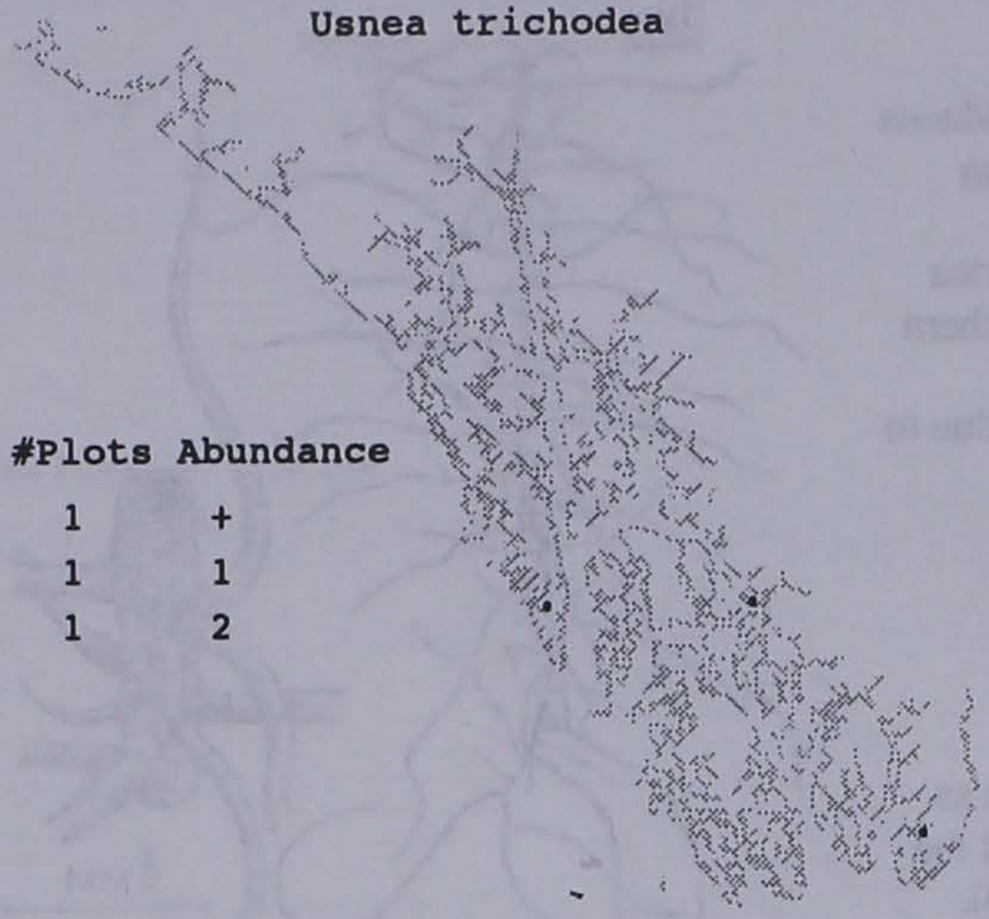
Usnea scabrata Nyl.
subsp. **nylanderiana** Mot.
Abundance: 1, rare.
Habitat: only specimen was found on *Malus fusca* on an island on the Stikine River flats.
Abundance in North America/Range: common; western North America and Europe.
Notes: northwest coastal range extension.

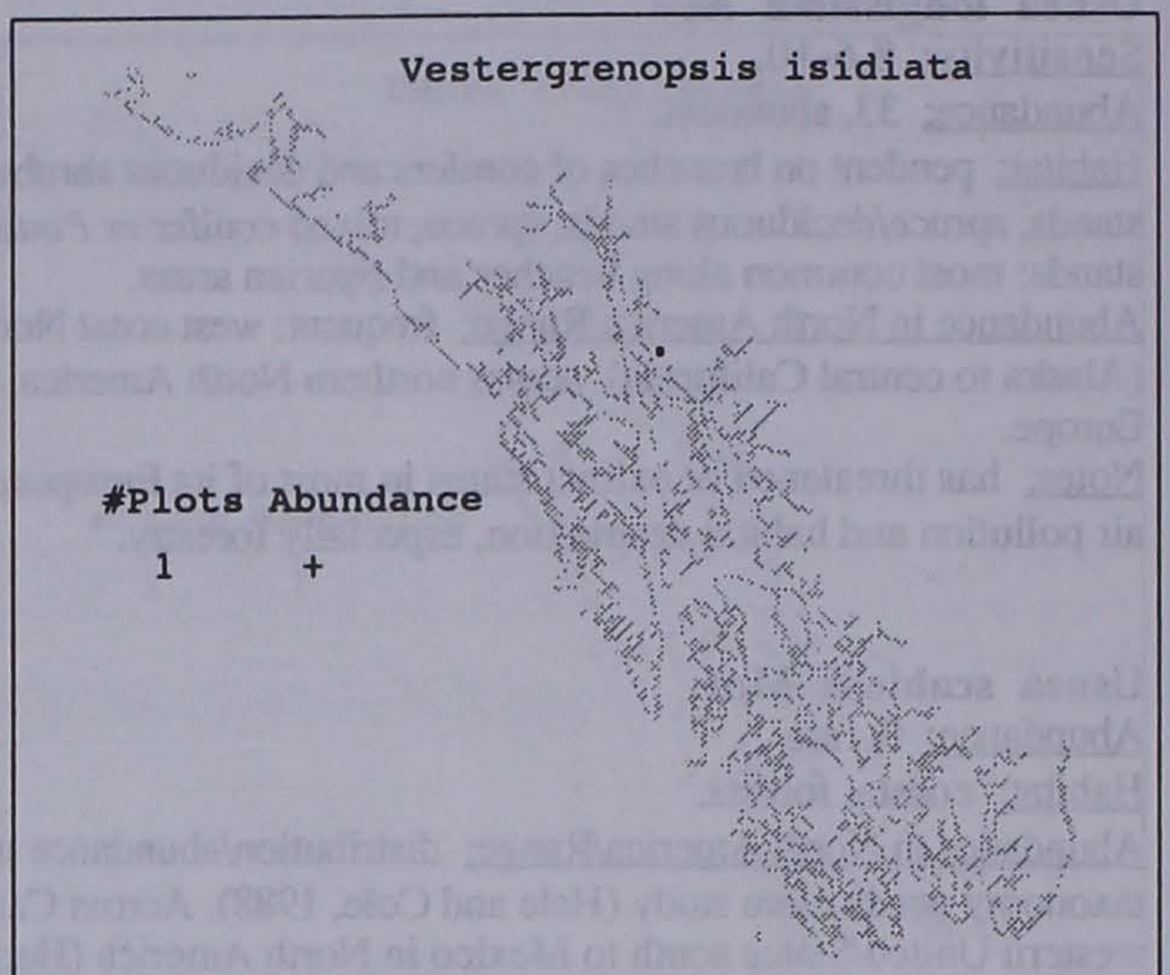
Usnea subfloridana Stirton
Sensitivity: 6-10.
SO_2 Sensitivity: sensitive-intermediate, 40/-.
Abundance: 1, infrequent-rare.
Habitat: on trunks and branches of trees along the beach.
Abundance in North America/Range: common; circumpolar low arctic and boreal.
Notes: *Usnea* spp. as a group are highly sensitive to air pollution, but *U. subfloridana* may be the most tolerant (Purvis et. al., 1992).

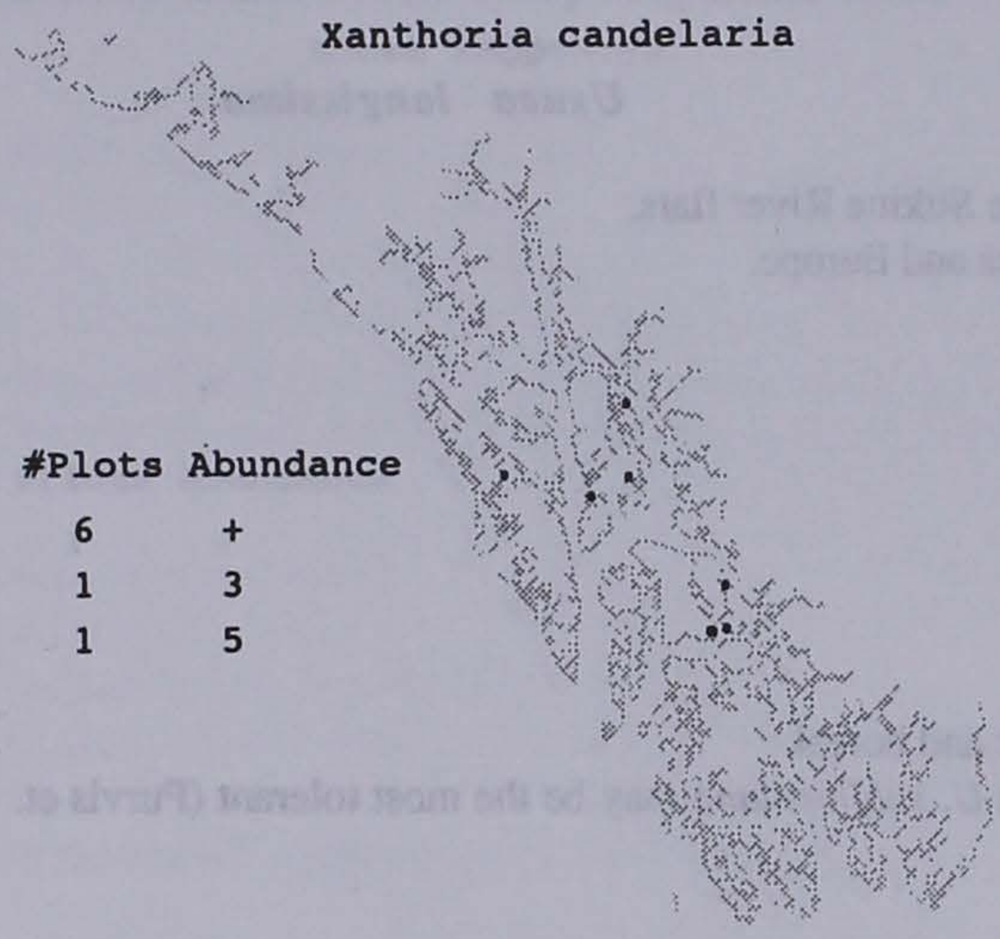
Usnea trichinella Mot.
Abundance: 1, infrequent-rare.
Habitat: single collection from branches of *Malus fusca* on Gut island in the Stikine River flats.
Abundance in North America/Range: distribution poorly known. Also found in Florida and South Carolina (Herre, 1980).
Notes: taxonomic status uncertain.

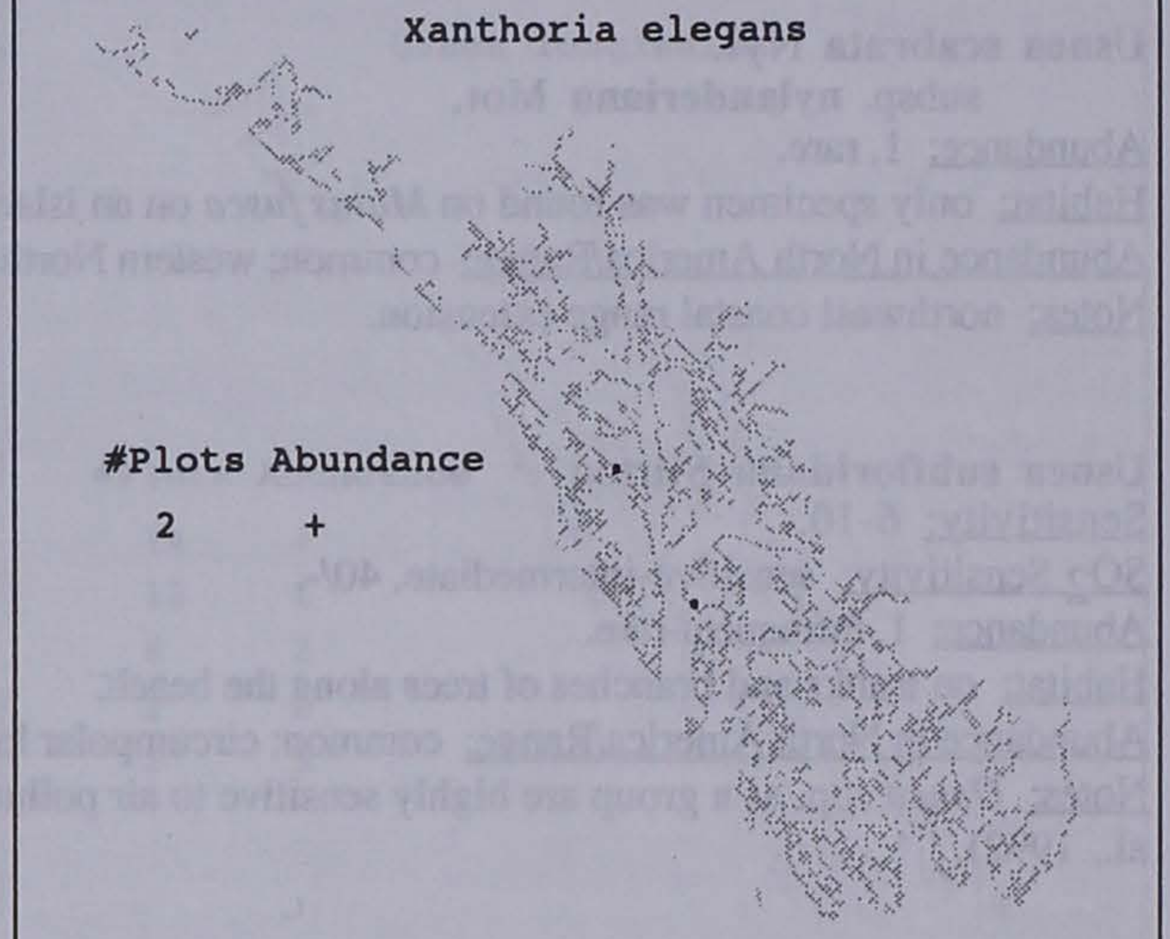
Usnea trichodea Ach.
Abundance: 3, infrequent.
Habitat: pendent from coniferous trees and deciduous shrubs along the boundaries of lakes or along beaches.
Abundance in North America/Range: common; main populations throughout the southeastern United States but also known from the western United States and British Columbia.

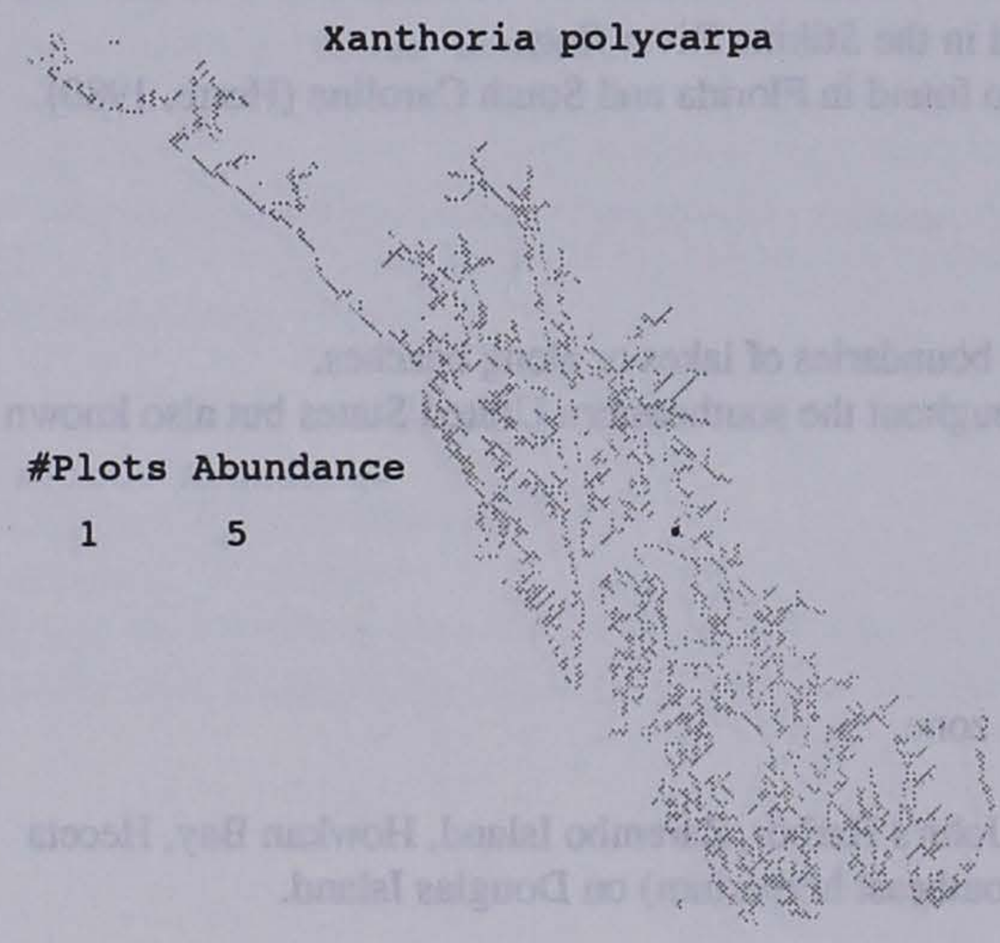
Verrucaria maura Wahlenb in Ach.
Abundance: 0, probably abundant.
Habitat: on seashore rocks as a black band directly above the high tide zone.
Abundance in North America/Range: common and cosmopolitan.
Notes: reported from Prince of Wales Island, the city of Wrangell, St. John's Harbor, Zarembo Island, Howkan Bay, Heceta Island.(Herre, 1919), Collected by R. O'Clair (University of Alaska, Southeast herbarium) on Douglas Island.

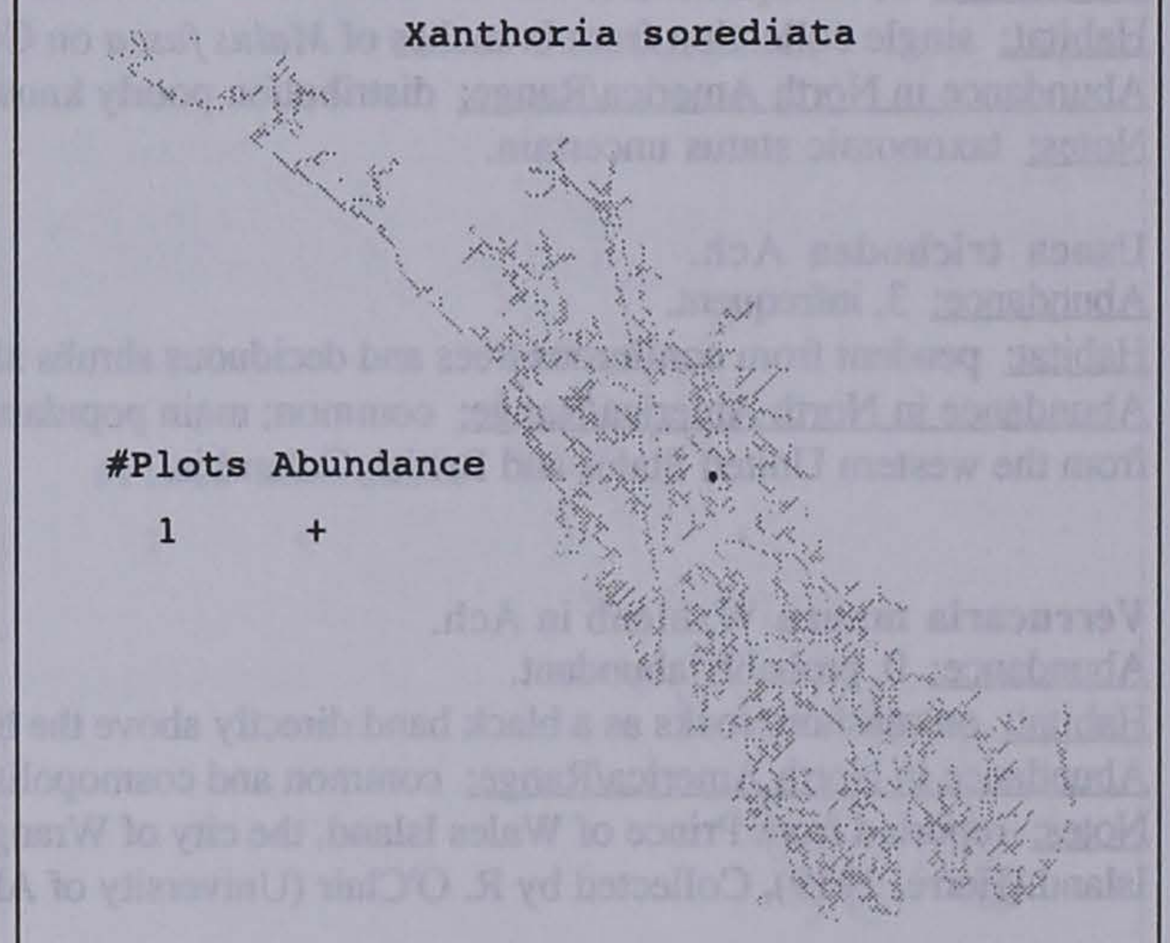

Usnea trichodea
#Plots Abundance
1 +
1 1
1 2


Vestergrenopsis isidiata
#Plots Abundance
1 +


Xanthoria candelaria
#Plots Abundance
6 +
1 3
1 5


Xanthoria elegans
#Plots Abundance
2 +


Xanthoria polycarpa
#Plots Abundance
1 5

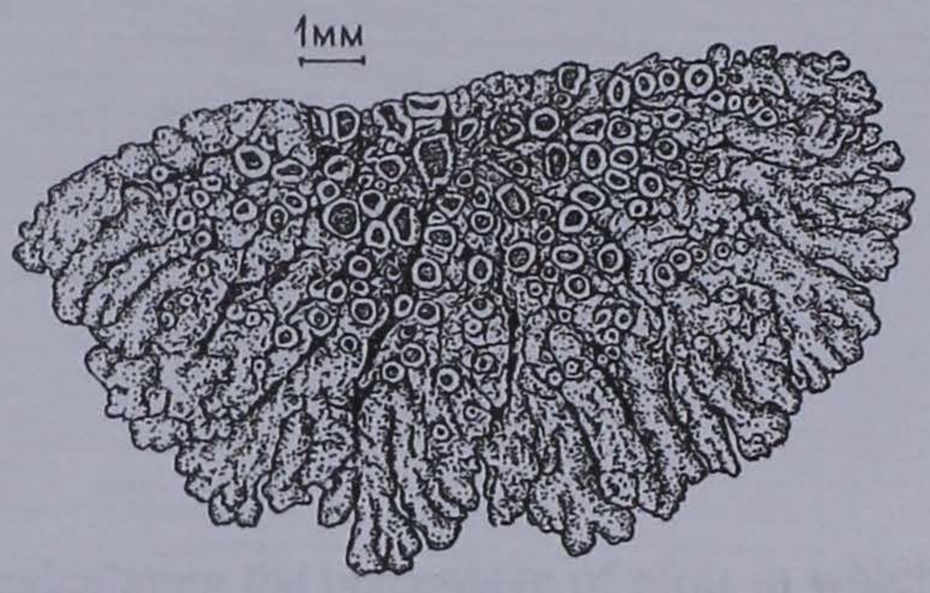

Xanthoria sorediata
#Plots Abundance
1 +

Verrucaria muralis Ach.
Abundance: 0, ?
Habitat: on calcareous rock.
Abundance in North America/Range: widespread in North America , Europe, Russia, North Africa and Australia.
Notes: reported from Calder quarry, Prince of Wales Island (Herre, 1919).

Vestergrenopsis elaeina (Wahlenb. in Ach.) Gyelnik
Abundance: 0, rare.
Habitat: R. O'Clair's collection near the glacier terminus on rock deglaciated about 25 years earlier.
Abundance in North America/Range: rare, all North America records from Alaska; also known from alpine Scandinavia, Faeroe Islands and Iceland.
Notes: reported from Mendenhall Valley (McCullough, 1965) and collected from Glacier Valley, about 14 mi. north of Juneau (R. O'Clair, University of Alaska, Southeast).

Vestergrenopsis isidiata (Degel.) Dahl
Abundance: 1, ?
Habitat: over moss covered rock at the mouth of Herbert glacier. Occurring in the alpine and subalpine in British Columbia (Goward et al., 1992).
Abundance in North America/Range: infrequently collected; western and eastern North America, western Eurasia, Alaska to British Columbia. Rare in British Columbia and outside North America, but found in Sweden and Greenland.
Notes: Also reported from Mendenhall Valley (McCullough, 1965).

Xanthoria candelaria (L.) Th. Fr.
Sensitivity: 4.
SO_2 Sensitivity: intermediate, 60/70.
Abundance: 3, ?
Habitat: over beach rock or bark of trees (*Picea*) on beaches.
Abundance in North America/Range: abundant; throughout North and South America, Europe, North Africa and Antarctica.
Notes: prefers nutrient-rich and enriched substrata (Purvis et al., 1992).



Xanthoria elegans

Xanthoria elegans (Link) Th. Fr.
Abundance: 1, common?
Habitat: on beach rocks.
Abundance in North America/Range: abundant; widespread in Northern Hemisphere and parts of the Southern Hemisphere extending far into the arctic and Antarctic.
Notes: common on exposed cliffs and boulders, especially nutrient rich acid and calcareous rocks and bird perches. Also occasionally on old bones and old wood (Thomson, 1984).

Xanthoria fallax (Hepp in Arnold) Arnold
Abundance: 1, infrequent?
Habitat: on trees, rocks, occasionally on moss and old wood (Thomson, 1984).
Abundance in North America/Range: circumpolar, boreal to temperate.
Notes: Collected from Klondike Gold Rush National Park.

Xanthoria polycarpa (Hoffm.) Rieber
Sensitivity: 2-10.
SO_2 Sensitivity: intermediate, 13-50/60.
Abundance: 3, ?
Habitat: over twigs of *Picea sitchensis* and deciduous shrubs along beaches.
Abundance in North America/Range: common; circumpolar boreal to subtropical and widely distributed in North America, especially western North America

Xanthoria sorediata (Vainio) Poelt
Abundance: 1, ?
Habitat: over beach rocks; in the alpine and subalpine in British Columbia.
Abundance in North America/Range: common and widespread in North America, especially the American Arctic; circumpolar arctic, alpine and boreal; rare in western America from southern Alaska to Mexico (Thomson, 1984). Common outside North America, circumpolar.

Xylographa opegraphella Willey **in** Rothr.
Abundance: 0, ?
Habitat: on wood (Fink, 1935).
Abundance in North America/Range: coastal western and eastern North America.
Notes: reported from Zarembo Island (Herre, 1919).

3.3 Most common lichens of the Tongass National Forest.

A list of the most common non-crustose lichens of the Tongass National Forest, with equal influence given to spruce, hemlock, cedar, alder, cottonwood, willow, mixed conifer, shorepine, subalpine, alpine and glacier lichen communities would be:

1. *Alectoria sarmentosa ssp. sarmentosa*
2. *Bryoria trichodes ssp americana*
3. *Cavernularia hultenii*
4. *Cladina rangiferina ssp. rangiferina*
5. *Cladonia bellidiflora*
6. *Cladonia squamosa*
7. *Hypogymnia duplicata*
8. *Hypogymnia enteromorpha*
9. *Lobaria linita*
10. *Lobaria oregana*
11. *Parmelia sulcata*
12. *Peltigera britannica*
13. *Platismatia glauca*
14. *Platismatia herrei*
15. *Platismatia lacunosa*
16. *Platismatia norvegica*
17. *Sphaerophorus globosus var. gracilis*

This list was determined using SYSTAT 5.2 (software) by calculating the percentage of plots in which each lichen species was present within each plant community and performing a cluster analysis which separated 325 lichens into two groups (this list, and all others).

3.4 Rare Lichens

The following preliminary list of rare lichens of southeastern Alaska (**Fig. 6**) includes these categories: rare worldwide, rare in North America, rare to infrequent Pacific Northwest endemics, common to rare lichens which are Southeast Alaska and Queen Charlotte Islands endemics, and lichens which are rare on the Tongass and rare to common elsewhere. It does not include the many species with poorly understood distribution in southeastern Alaska which are not rare elsewhere in North America.

Figure 6. Preliminary list and distribution of rare lichens of southeastern Alaska

Species	Abundance			
	Outside North America	North America	Pacific North-West and Local Endemics	Southeastern Alaska
Alectoria sarmentosa subsp. vexillifera	common in parts of northern Europe	across northern N.A. but infrequent west of the Rocky Mountains.		rare?
Amygdalaria subdissentiens	rare; Siberia, Japan and the northwest coast of North America	rare		uncertain
Allantoparmelia sibirica	known only from eastern Russia	rare (1st. N.A. record)		uncertain
Arctomia delicatula	infrequent	infrequent		rare
Bacidia phacodes	common in Europe	poorly known		uncertain
Brigantea fuscolutea	rare ; in arctic North America, Greenland and northern Europe	rare		uncertain
Bryoria carlottae	absent	only QCI, TNF	infrequent	common
Bryoria cervinula	absent	only QCI, TNF	rare	infrequent
Bryoria chalybeiformis	common	common		rare
Bryoria fremontii	common	common		rare
Bryoria oregana	absent	common		rare
Bryoria pseudofuscescens	common	common		rare
Bryoria simplicior	common	common		rare
Bryoria subcana	infrequent	rare		rare
Caloplaca exsecuta	frequent	rare		uncertain
Caloplaca litoricola	absent	PNW endemic	common	uncertain
Cavernularia lophyrea	absent	PNW endemic	frequent	abundant
Cetraria californica	absent	PNW endemic	common	infrequent
Cetraria delisei	common	common		rare
Cetrelia alaskana	rare	rare		rare
Chaenotheca stemonea	rare	rare		uncertain
Cladina mitis	common	common		rare
Cladina pseudoevansii	common in parts of Asia	rare		rare
Cladonia asahinae	absent	PNW endemic	rare	rare
Cladonia bacilliformis	?	rare		rare
Cladonia homosekikaica	?	rare		rare
Cladonia humilis	common	rare in western N.A.		rare
Cladonia macilenta	common	common		rare
Cladonia nipponica	infrequent	rare		rare
Cladonia norvegica	infrequent	rare		rare-infrequent
Cladonia pseudomacilenta	rare	rare		rare
Cladonia ramulosa	common	rare		rare
Cladonia subsubulata	rare	PNW endemic	infrequent	rare
Cladonia subulata	common	common		rare
Cladonia symphycarpa	rare	rare		rare
Cladonia umbricola	infrequent	only PNW	common	common
Cladonia verruculosa	S. America (Chile)	west		rare
Coccotrema maritimum	absent	PNW, California to Alaska	common only on QCI	rare
Coccotrema pocillarium	absent	PNW endemic	frequent	frequent?
Dendriscocaulon intricatulum	oceanic, infrequent	rare		rare-infrequent
Dermatocarpon intestiniforme	widespread, bipolar	rare		uncertain

Figure 6 (Cont'd.). Preliminary list and distribution of rare lichens of southeastern Alaska

Species	Abundance			
	Outside North America	North America	Pacific North-West and Local Endemics	Southeastern Alaska
Dermatocarpon rivulorum	rare	rare		rare
Erioderma mollissimum	rare	rare		rare
Farnoldia jurana	rare	rare		uncertain
Heterodermia speciosa	widespread in Europe and Asia	rare in western N.A.		common
Hypogymnia bitteri	common	common		rare
Hypogymnia oceanica	absent	only PNW	rare-infrequent	common
Imshaugia aleurites	Europe, Asia	common and widespread		rare
Leptogium furfuraceum	absent	common in western		rare
Leptogium tenuissimum	rare	rare		rare
Leptogium teretiusculum	rare	rare		rare
Lobaria kurokawae	common in Asia	rare		rare
Lobaria pseudopulmonaria	common in Asia	rare		rare
Lobaria retigera	common in Asia	rare		rare
Melanelia fuliginosa	common in Europe	common and widespread		rare
Melanelia multispora		common in western		rare
Melanelia subaurifera	common	common		infrequent-rare
Neofuscelia subhosseana	bipolar, S. America, New Zealand, S. Africa	rare		rare
Nephroma isidiosum	rare	rare		infrequent
Normandina pulchella	common	common in oceanic habitats		rare
Ochrolechia laevigata	absent	only PNW	common	common
Ochrolechia juvenalis	absent	only PNW	common	common
Pannaria ahlneri	W. Norway, Japan, Siberia	rare, in BC and SEAK; Appalachians		rare
Pannaria laceratula	common in Asia	only QCI, TNF	frequent on QCI	infrequent
Pannaria leucostictoides	absent	PNW endemic	rare -infrequent	uncertain
Pannaria saubinetii	infrequent in Mediterranean	infrequent-rare		infrequent
Peltigera canina	abundant	abundant		rare
Peltigera elisabethae	widespread	?		rare
Peltigera horizontalis	common	common		rare
Peltigera malacea	abundant	abundant		rare
Pertusaria borealis	frequent in Europe	only PNW	infrequent-common	common
Pertusaria subambigens	absent	only PNW	common	common
Phylliscum demangeonii	rare	rare		uncertain
Physcia stellaris	common	rare in western N.A.; very common elsewhere		
Pilophorus nigricaulis	rare, known only from Japan	rare		
Pilophorus robustus	infrequent to rare	infrequent to rare		rare
Polychidium dendriscum	rare	rare		uncertain
Pseudocyphellaria rainierensis	absent	only PNW	rare	rare
Rhizocarpon praebadium	infrequent	rare (first record)		uncertain
Solorina bispora	abundant in parts of Europe	rare		rare
Solorina spongiosa	common	rare-common		rare
Sphaerophorus melanocarpus	rare	rare		rare
Stereocaulon coniophyllum	widespread	rare		uncertain

Figure 6 (Cont'd.). Preliminary list and distribution of rare lichens of southeastern Alaska

Species	Abundance			
	Outside North America	North America	Pacific North-West and Local Endemics	Southeastern Alaska
Stereocaulon dactylophyllum	uncertain	rare		uncertain
Stereocaulon groenlandicum	rare-infrequent	rare-infrequent		uncertain
Stereocaulon octomerum	known only from Japan	rare		uncertain
Stereocaulon pileatum	rare	infrequent		uncertain
Stereocaulon saviczii	rare	rare		uncertain
Stereocaulon spathuliferum	rare	rare		uncertain
Stereocaulon subcoralloides	infrequent	infrequent		uncertain
Stereocaulon symphycheilum	rare	rare		uncertain
Sticta limbata	common in Europe	common		rare
Sticta weigelii	East Eurasia	infrequent-rare in western N.A.		common
Sticta wrightii	rare	rare		infrequent
Tuckermannopsis merrillii	absent	common		rare
Umbilicaria hirsuta	rare	rare		uncertain
Usnea fragilescens		infrequent?		infrequent-rare
Usnea glabrata	?	rare		rare
Usnea glabrescens	?	infrequent?		rare
Usnea leucosticta	?	rare		rare
Usnea scabiosa	?	uncertain		rare
Usnea scabrata	?	common		rare
Usnea subfloridana	common	common		rare
Usnea trichinella	?	uncertain		rare
Vestergrenopsis elaeina	rare	rare		rare
Vestergrenopsis isidiata	rare, Sweden and Greenland	rare in western N.A.		rare
Xanthoria sorediata	common circumpolar	common		uncertain

?= information was not available to the authors.
uncertain= distribution and abundance is poorly understood.
common= lichen is abundant or common in a large portion of its range
rare or infrequent = lichen is rare or infrequent throughout most of its range.

Except for abundance categories in southeastern Alaska (described in the text prior to the inventory section) the terms "rare", "infrequent" and "common" are used subjectively, and were assessed from the available literature for each species. For reference, habitat and distribution information, see the individual species entries in the inventory section.

3.5 Range Extensions

Lichens recorded for the first time, to the best of our knowledge, in Alaska or outside their previously known range in North America are presented in **Fig. 7**. Thirty range extensions are reported.

Figure 7. Range Extensions within North America

NORTHERN RANGE EXTENSIONS and FIRST ALASKAN RECORDS
Amygdalaria consentiens
Bacidia nivalis
Bryoria carlottae
Bryoria fremontii
Bryoria friabilis
Bryoria oregana
Bryoria simplicior
Caloplaca pollinii
Cetraria californica
Neofuscelia subhosseana
Ochrolechia arborea
Ochrolechia juvenalis
Ochrolechia subpallescens
Pannaria ahlneri
Pertusaria amara
Pertusaria subambigens
Pseudocyphellaria rainierensis
Stereocaulon pileatum
Usnea scabrata

WESTERN AND SOUTHWESTERN RANGE EXTENSIONS TO THE NW PACIFIC COAST
Baeomyces rufus
Cladonia decorticata
Ephebe lanata
Stereocaulon subcoralloides

SOUTHERN RANGE EXTENSIONS
Cetrelia alaskana
Pilophorus robustus
Ramalina almquistii
Stereocaulon symphycheilum

FIRST NORTH AMERICAN RECORDS
Allantoparmelia sibirica
Rhizocarpon praebadium
Stereocaulon capitellatum

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